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ACCOUNTING FIRMS

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AN INDUSTRY SECTOR REPORT
SMALL ESTABLISHMENT SERVICE

ACCOUNTING FIRMS

DECEMBER 1978

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ACCOUNTING FIRMS

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ACCOUNTING FIRMS

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I INTRODUCTION

I INTRODUCTION

- This report is produced by INPUT as part of the Small Establishment Service (SES). The report covers the selection and use of information processing products, services, and supplies by small establishments in the accounting, auditing, and bookkeeping services industry. These products and services include:
 - Computer equipment.
 - Computer services.
 - Office equipment.
 - Office services.
 - Communications equipment.
 - Communications services.
 - Supplies.
- Both independent accounting firms and branches of "Big Eight" and other national accounting firms were analyzed and reported upon separately.
- Accounting firms (SIC 893) were interviewed exclusively for this study.

- Accounting firms were analyzed and reported upon by size categories of 1 to 19, 20 to 99, and 100 to 499 employees. These size categories match federal statistics.
- This report emphasizes the present use of information processing products and services and the desire for increased automation by accounting firms.
- The accounting sector is of major importance because of its existing high level of automation, its high level of expressed need to further improve its information processing capabilities, and because it is an industry sector in which "paperwork" is the only product.
- A bibliography of information sources is included in Appendix A.
- Research carried out for this report included a series of interviews conducted in July and August 1978 as specified in Appendix B.
 - Definitions of terminology used in the interviews and this report appear in Appendix C.
 - A sample copy of the questionnaire is included in Appendix D.
- Inquiries and comments on the information presented in this report are invited from clients.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. SCOPE AND KEY CONCLUSIONS

- There are a total of 30,800 establishments in the United States in the accounting sector that have less than 500 employees. This is 99.9% of all accounting establishments. In 1977 these firms billed \$6.9 billion and employed over 200,000 people.
- A total of \$210 million was spent in 1977 on information processing equipment and services (not including the EDP and office staff) by these small establishments. Thus, even though this industry is not large numerically, it uses a great deal of information automation equipment and services.
- Accounting firms (particularly independents) do not use a rigorous budget for purchasing information processing equipment and services. Most information processing costs are passed along directly or indirectly to accounting firm clients.
- Thus, the small accounting firm is willing and able to spend money especially for computer services and word processing equipment. This is demonstrated in Exhibit II-1 which shows the average amount per employee that small accounting establishments spend for information processing equipment and services.

EXHIBIT II-1

AVERAGE CURRENT EXPENDITURES
OF THE ACCOUNTING INDUSTRY

EXPENDITURE CLASS	\$/EMPLOYEE PER YEAR
EDP EQUIPMENT, SERVICES & SUPPLIES	\$234
OFFICE EQUIPMENT	205
COMMUNICATIONS EQUIPMENT & SERVICES	541

- This rate is the third highest of any industry sector and illustrates the 91% penetration of computer equipment and services and 44% penetration of word processing in the accounting industry.
- Although purchasing is centralized for most branches of national accounting firms, these branches have a considerable voice in identifying needs and recommending equipment and services, including EDP equipment and services, office equipment, and communications equipment and services. From one-third to two-thirds of the larger branch establishments (over 20 employees) are involved in decisions to obtain equipment and services of all kinds.
- More than one-third of the respondents stated that they have specific immediate information processing automation needs in the areas of EDP, office automation, or communications. Exhibits II-2 and II-3 show that these needs for more information processing automation exist both in branches of "Big Eight" and other national accounting firms and in local or regional independent enterprises. All sizes of small establishments have these needs.
- The level of need for office equipment, communications equipment, and communications services ranks above average among all industry sectors. The level of need for EDP equipment and services ranks average.

B. ACCOUNTING INDUSTRY SECTOR STRUCTURE

- Of the 30,800 accounting establishments in the United States in 1975-1976:
 - 29,400 of them had 1-19 employees. (95%)
 - 1,200 of them had 20-99 employees. (4%)
 - 150 of them had 100-499 employees. (0.5%)

EXHIBIT II-2

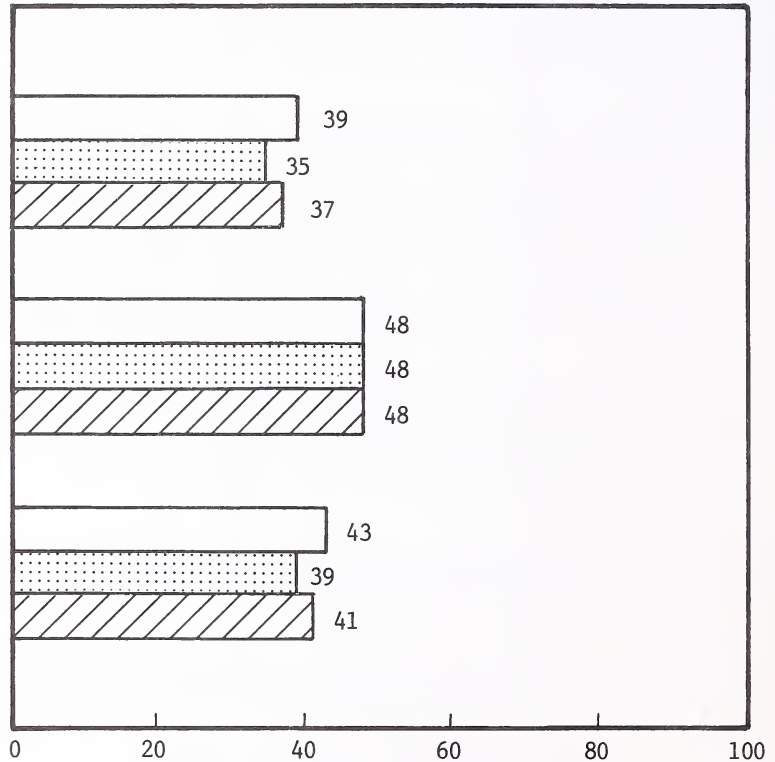
EDP, OFFICE AND COMMUNICATION NEEDS AS REPORTED BY RESPONDENTS - BRANCHES/INDEPENDENTS

TYPE OF NEED
EXPRESSED

EDP NEEDS

OFFICE NEEDS

COMMUNICATION
NEEDS



PERCENTAGE OF RESPONDENTS
REPORTING IMMEDIATE NEEDS

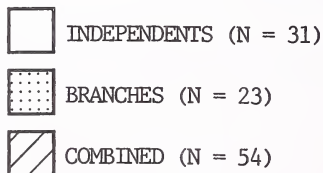
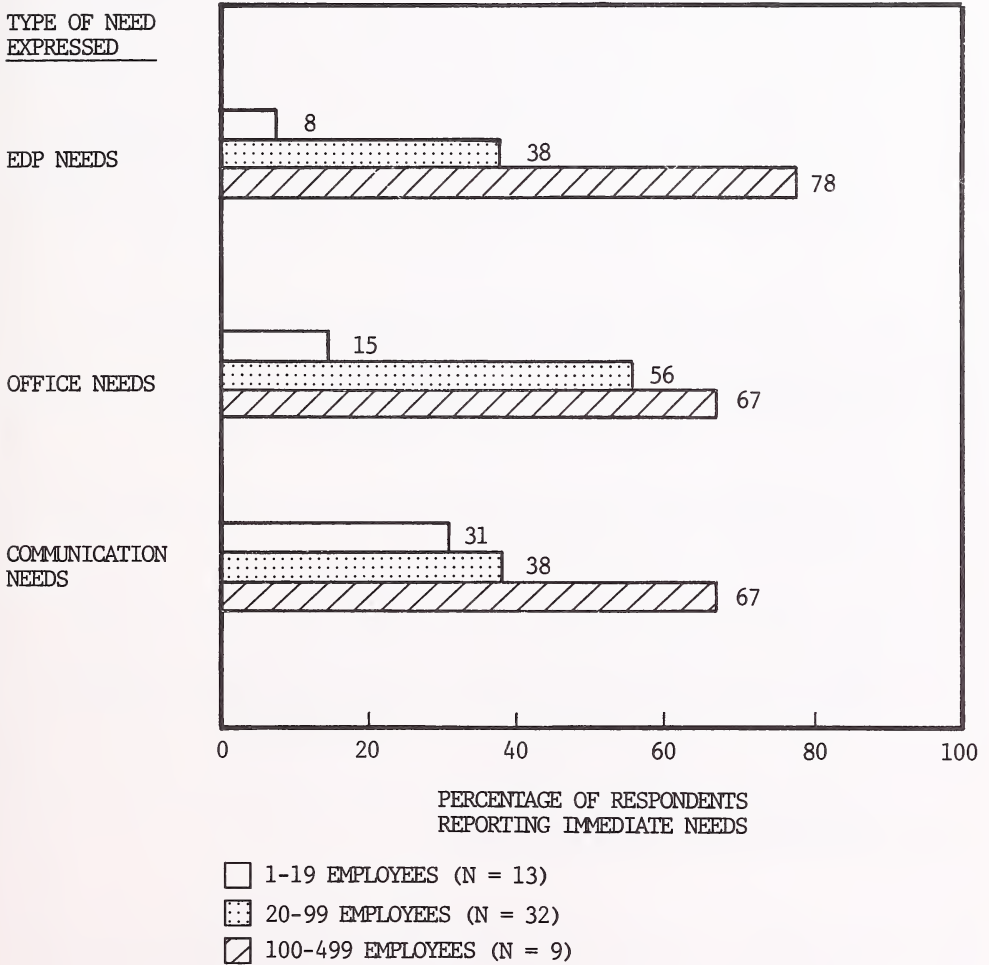


EXHIBIT II-3

EDP, OFFICE AND COMMUNICATION
NEEDS AS REPORTED BY RESPONDENTS
(BY SIZE OF ESTABLISHMENTS)



- 20 of them had over 500 employees. (less than 0.1%)
- Small establishments in the accounting industry employ 0.3% of the United States work force, or 200,000 people. Of these,
 - 100,000 were in firms of 1-19 employees.
 - 40,000 were in firms of 20-99 employees.
 - 28,000 were in firms of 100-499 employees.
- The total accounting sector realized \$6.9 billion in gross domestic revenues in 1977. This total is growing slightly faster than the rate of inflation, or about 12% per year.
 - Gross domestic revenues in 1977 averaged \$33,000 per employee.
- Accounting firms primarily follow the distribution of population, with slightly higher densities on the West Coast and in the Northeast States.
- The "Big Eight" accounting firms employ 23% of all accounting personnel and generate 30% of all accounting revenues.
 - "Big Eight" branches comprise 2.5% of all accounting establishments.
- The ratio of professional to clerical personnel in a typical "Big Eight" accounting firm is four professionals to one clerical or support employee.

C. EQUIPMENT AND SERVICES MARKETS

- The growth in the use of computer equipment and services and office automation equipment in the accounting sector is driven both by the reduction

in size and cost and by the improvement in the price/performance ratio of information processing equipment. These factors combine to allow the introduction of this equipment into increasing numbers of small firms in the sector. The resulting growth will be 26% per year for computer equipment, 26% a year for computer services, and 20% a year for office automation equipment.

- Communications services will grow in branches of national firms at the same rate as the overall use of communications, 7% a year for voice, 20% a year for data communications and 9% overall. Independents' use of communications services will grow more slowly because they are predominantly local or regional in nature and do not make much use of long distance services.
 - Communications equipment such as PABX and facsimile will increase at the same rate as office automation equipment.
 - Communications equipment growth applies only to branch establishments and large, multi-office independents, because there is a high proportion of single employee accounting firms in this industry that do not require multi-line communications equipment.
- The present penetration of information processing equipment and services is shown in Exhibit II-4 for branches and independents. The penetration of computer services is shown in Exhibits II-5 and II-6. Branches and independents are about equally penetrated for EDP, but independents use a greater proportion of computer services than branches do. Branches on the other hand are 50% more receptive to word processing equipment than independents are.
- The total market for information processing equipment and supplies in the United States in 1977 for small establishments in the accounting sector is:

EXHIBIT II-4

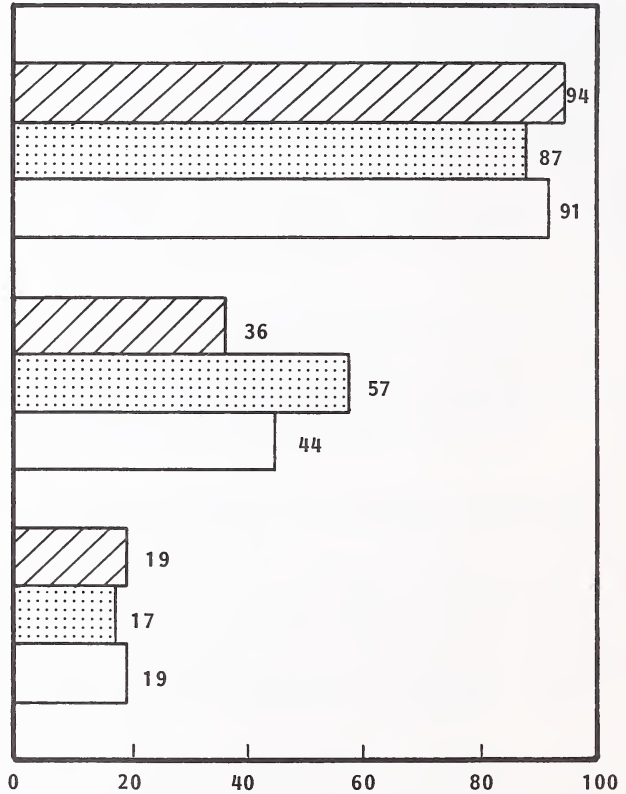
USERS OF COMPUTER, OFFICE, AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS (TOTALS)

TYPE OF AUTOMATION

EDP
(EQUIPMENT AND/OR
SERVICES)

OFFICE
(WORD PROCESSING)

COMMUNICATIONS
(INTERCONNECT)



PERCENTAGE OF RESPONDENTS
WHO ARE USERS



INDEPENDENT (N = 31)



BRANCH (N = 23)



COMBINED (N = 54)

EXHIBIT II-5

PENETRATION OF COMPUTER SERVICES
AS REPORTED BY RESPONDENTS - BRANCHES

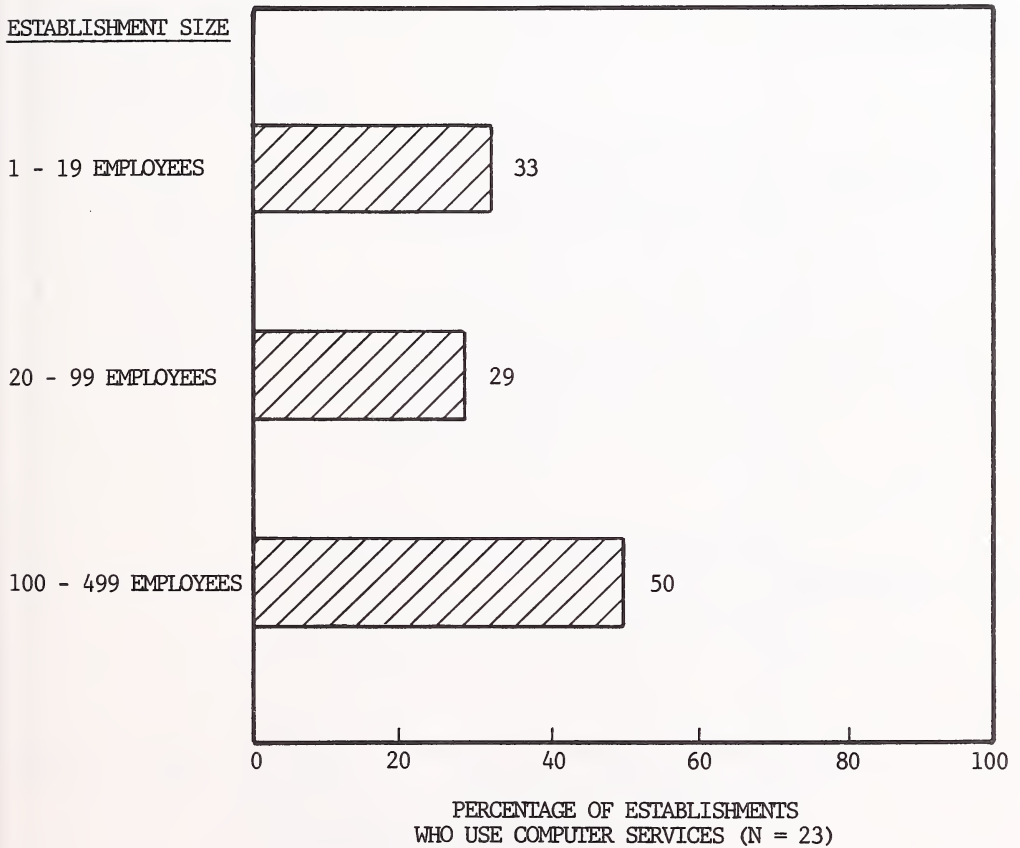
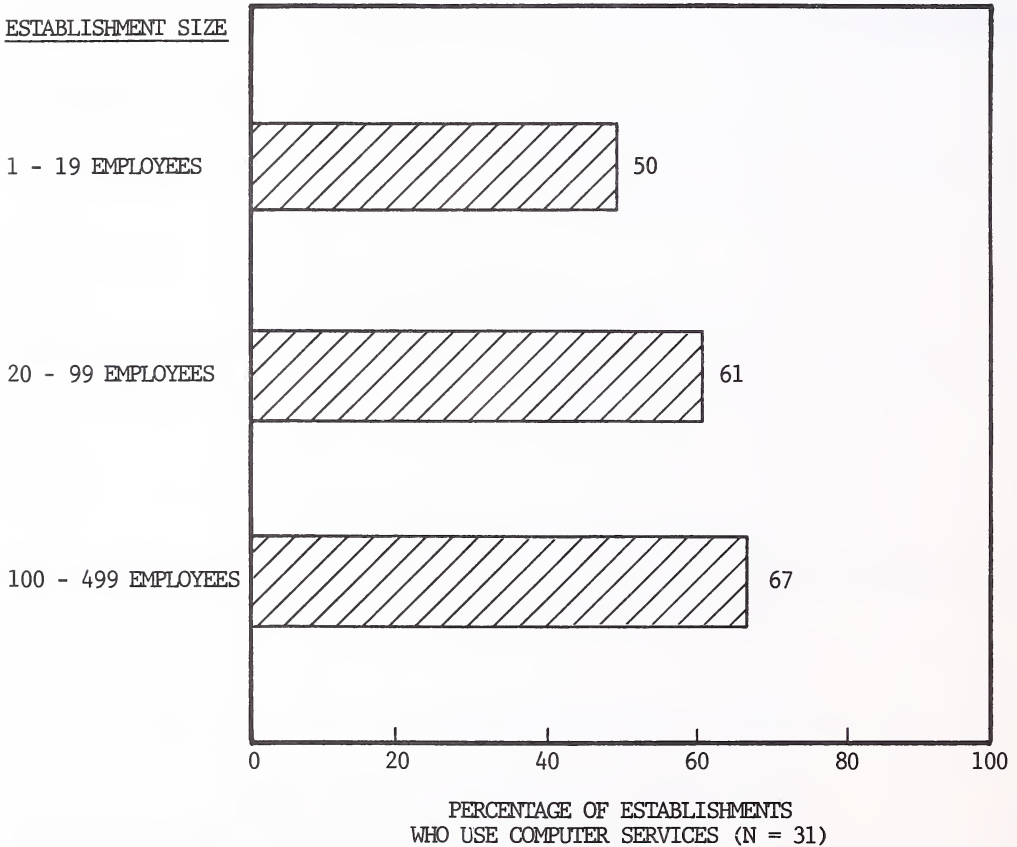


EXHIBIT II-6

PENETRATION OF COMPUTER SERVICES
AS REPORTED BY RESPONDENTS - INDEPENDENTS



Computer equipment and services (not including personnel)	\$ 50 million
Office equipment	\$ 44 million
Communications services and equipment	\$116 million
Office supplies	<u>\$ 47 million</u>
Total	\$257 million

- This total averages to about \$1,235 per employee.

D. APPLICATION NEEDS

- Computer equipment and services are used for financial and administrative applications in 91% of the branches of national accounting firms and 81% of the independents. A large proportion of this represents "write-up" work for clients, rather than for the business of the accounting firm itself. Industry specialty applications (auditing, tax return preparation, etc.) are performed by 57% of the branches and 65% of the independents.
 - Considering the current high level of use of computers, it is not surprising that only the small and medium size independents who are not yet fully automated expect to automate additional applications by 1983, bringing their level of automation also to 90%.
 - Financial and administrative functions will continue to be more automated than the industry specialty applications.
- There are opportunities for vendors to develop combined computing/word processing applications in the accounting industry specialty area.

E. MARKETING REQUIREMENTS

- Selling to independent small accounting establishments always requires convincing top management to buy the equipment or service. In the case of multi-location independents, this usually means off-site top management as well as the location manager.

- When marketing equipment or services for use by branches of national accounting firms, the branch is a participant in the sales cycle 40% or more of the time, mainly in identifying and quantifying needs but also in identifying specific equipment, services and suppliers.
 - EDP equipment requires the most involvement by headquarters in the purchase cycle.

F. RECOMMENDATIONS

- Vendors with products and services suitable for the small businessman should continue to direct their efforts towards the accounting sector.
 - The target for EDP and office automation equipment should be to upgrade or replace existing equipment.
 - Computer services vendors should concentrate on small and medium sized independent establishments.
 - Independent enterprises with over 100 employees should be targeted first for communications equipment and office equipment, followed by medium sized independents and branches of all sizes.

- Branches of "Big Eight" and other national accounting firms should be approached as well as independent enterprises, since they usually have considerable say in equipment justification and selection, particularly in word processing, photocopying, and communications interconnect equipment. However, the company should be qualified as rapidly as possible concerning the corporate control requirements.
- National account marketing including interaction with headquarters staff is important in dealing with branches of large accounting firms.
- Multi-function equipment which would combine text and data processing is already desirable by the larger accounting establishments. There is more interest in adding data processing to text editing equipment, rather than vice versa. Vendors should therefore emphasize these features to accounting firms.
- Vendors should utilize trade journal media and association advertising to break into the market of accounting establishments under 100 employees with multi-function equipment.
- Vendors of computer services should emphasize convenience, not cost savings, to the accounting establishment because information processing costs are usually passed along to clients.
- Equipment vendors should develop a strategy to allay apprehension of accounting firms about the loss of business from clients who purchase their own micro or minicomputer system.
- This strategy should include provisions for obtaining leads from and providing referrals to local accounting establishments.

III INDUSTRY STRUCTURE

III INDUSTRY STRUCTURE

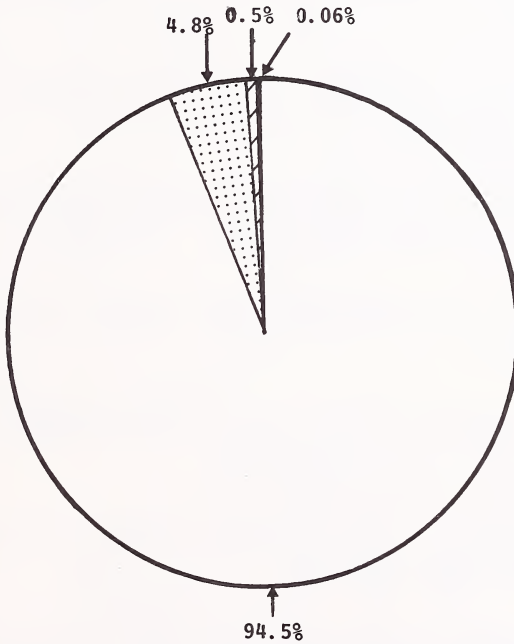
A. FUNCTIONAL DESCRIPTION

- The industry which is the focus of this study is the accounting, auditing, and bookkeeping services industry (SIC 893), hereafter referred to as the accounting industry. This industry is part of the miscellaneous services group of industries contained in SIC 89.
- The accounting industry had 208,000 employees and gross revenues of \$6.9 billion in 1977.
 - The accounting industry employed 0.3% of the United States work force and represented 0.4% of the United States gross national product in 1977.
- The accounting industry spent \$210 million in 1977 on equipment and services, including:
 - EDP equipment.
 - EDP services.
 - Office equipment.

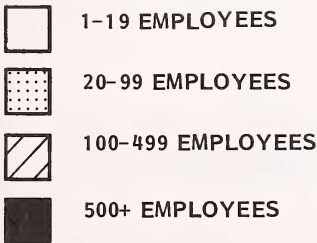
- Communications equipment.
- Communications services.
- Supplies.
- The accounting industry is essentially comprised entirely of small establishments. Over 99.99% of establishments have less than 500 employees (see Exhibit III-1).
- The accounting industry contains eight large firms and over twenty thousand small firms. The actions of the eight largest accounting firms, commonly referred to as the "Big Eight," set the pace for the entire industry. These firms are:
 - Arthur Anderson And Company.
 - Arthur Young And Company.
 - Coopers And Lybrand.
 - Deloitte Haskins And Sells.
 - Ernst And Ernst.
 - Peat, Marwick, Mitchell And Company.
 - Price Waterhouse And Company.
 - Touche Ross And Company.
- Because these firms are dominant in the industry, their branches have been analyzed separately from the other firms. These branches are analogous to Fortune 500 branches.

EXHIBIT III-1

STRUCTURE OF THE ACCOUNTING, AUDITING,
AND BOOKKEEPING SERVICES INDUSTRY (SIC 893) -
BY SIZE OF ESTABLISHMENT, 1975 - 1976



30,812 ESTABLISHMENTS



- In addition to the "Big Eight," there are about fifteen other national firms, each of which has multiple branches and acts like a multi-location corporation. However, almost all accounting firms are organized as partnerships. Individual locations of these national firms are analyzed as branches.
- All other firms are analyzed as independent establishments.
- "Big Eight" branches comprise two percent of all establishments in the accounting industry.
- About one-fourth of all employees in the accounting industry work for "Big Eight" firms (see Exhibit III-2).
 - The average number of employees per establishment in the "Big Eight" firms ranges from 56 to 107 employees.
 - The rest of the accounting industry averages five employees per establishment.
- "Big Eight" firms produce one-third of the \$6.9 billion revenues generated by the accounting industry (see Exhibit III-3).
 - Except for the two largest firms, the revenues are divided almost equally among these large firms.
 - Details of number of establishments, number of employees, and domestic revenues of the "Big Eight" firms are shown in Exhibit III-4.
- Seventy percent of "Big Eight" revenues are from accounting and audit functions.
 - More than 1,550 of approximately 1,725 firms listed on the New York Stock Exchange or the American Stock Exchange use a "Big Eight" firm as their independent auditor.

EXHIBIT III-2

U.S. EMPLOYMENT OF THE ACCOUNTING INDUSTRY
AND THE "BIG EIGHT" FIRMS - 1975



NUMBER OF EMPLOYEES IN THE
ENTIRE ACCOUNTING
INDUSTRY
(=208,470)

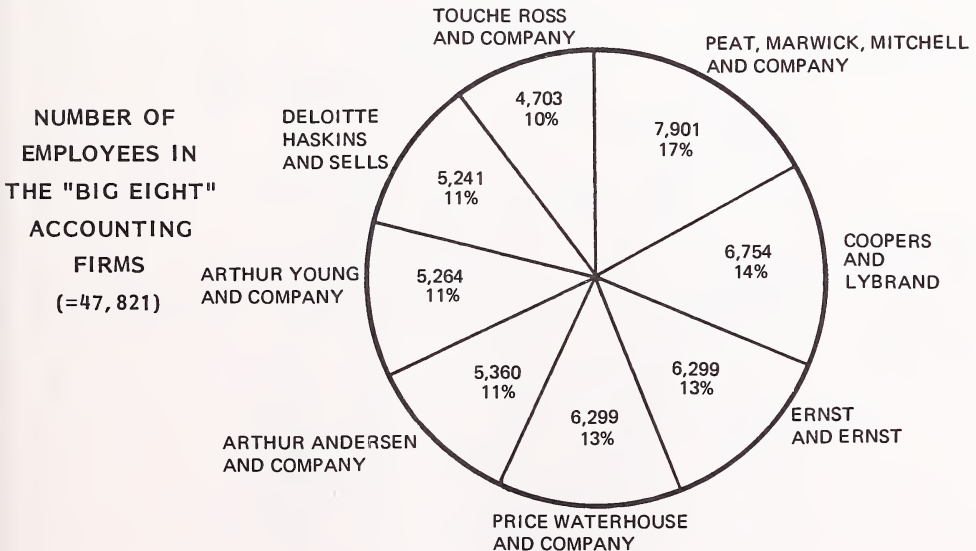
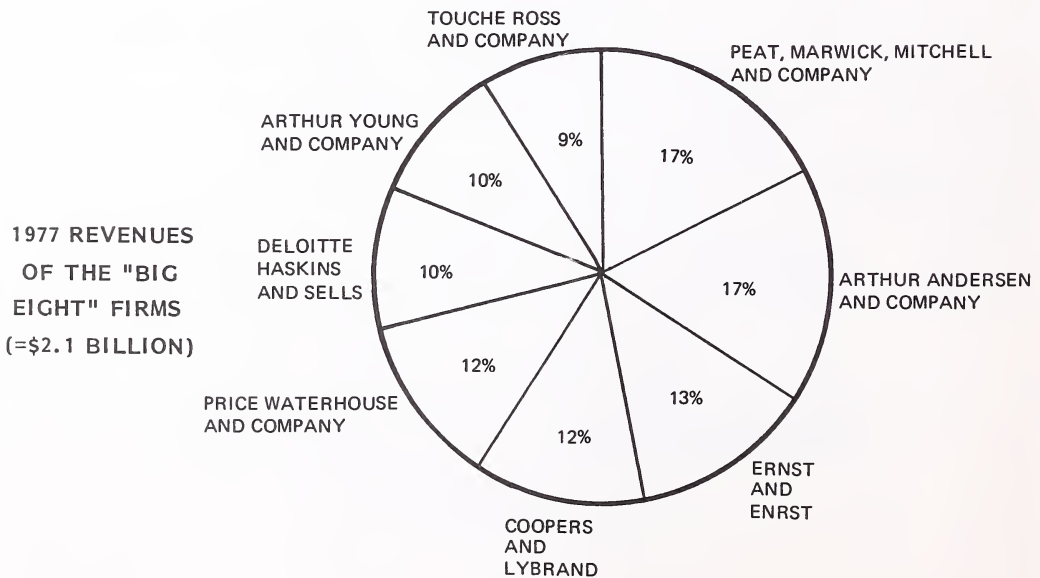
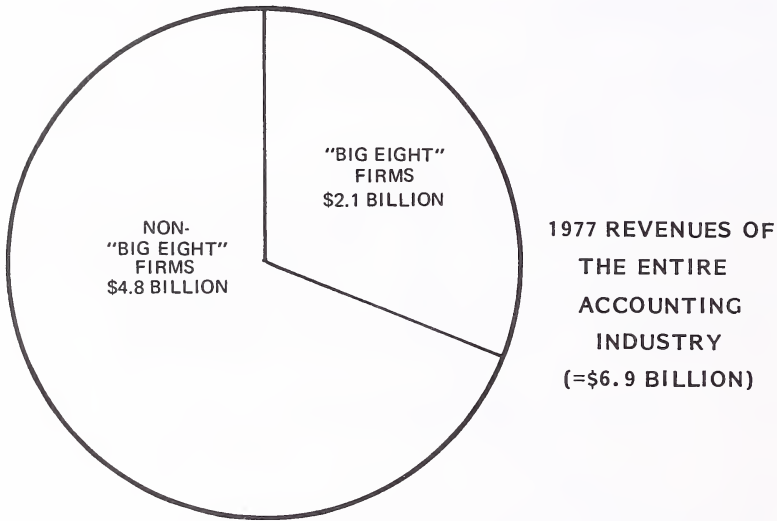


EXHIBIT III-3

U.S. REVENUES OF THE ACCOUNTING INDUSTRY AND THE "BIG EIGHT" FIRMS - 1977



DEMOGRAPHICS OF THE "BIG EIGHT" FIRMS

DEMOGRAPHICS	PEAT, MARWICK, MITCHELL AND CO.	COOPERS AND LYBRAND	ERNST AND ERNST	PRICE WATER- HOUSE AND CO.	ARTHUR ANDER- SEN AND CO.	ARTHUR YOUNG AND CO.	DELOITTE HASKINS AND SELLS	TOUCHE ROSS AND CO.	TOTAL
NUMBER OF U.S. EMPLOYEES (1975)	7,901	6,754	6,299	6,299	5,360	5,264	5,241	4,703	47,821
NUMBER OF U.S. OFFICES (1975)	99	81	112	67	50	64	93	76	642
ESTIMATED 1977 U.S. REVENUES (\$ MILLION)	\$365	256	285	245	351	210	220	185	\$2,117

- More than 35,000 corporations in the United States use a "Big Eight" firm as their independent auditor.
- Eleven percent of "Big Eight" revenues are from management advisory services. These services include:
 - Executive recruitment.
 - Marketing analysis.
 - Plant layout.
 - Product analysis.
 - Management control systems.
 - Service bureau activities.
- Eighteen percent of "Big Eight" revenues are from tax advisory services.
- There are slight regional concentrations in the accounting industry (see Exhibit III-5).
 - There are 212 accounting establishments per million population in the western states (Nevada, Colorado, Oregon, California, and Arizona), where over 19% of the accounting industry is located.
 - There are 141 accounting establishments per million population in the eastern states (New York, New Jersey, Pennsylvania, Connecticut, and Massachusetts), where 21% of the accounting industry is located.
 - Thirty-one percent of the industry is located in California, Texas, and New York.

EXHIBIT III-5

DISTRIBUTION OF ACCOUNTING FIRM ESTABLISHMENTS
(BY STATE)

STATE	NUMBER OF SMALL ESTABLISHMENTS	% OF U.S. TOTAL	STATE	NUMBER OF SMALL ESTABLISHMENTS	% OF U.S. TOTAL
AL	418	1.4 %	MT	159	0.5 %
AK	79	0.3	NE	221	0.7
AZ	445	1.5	NV	125	0.4
AR	293	0.9	NH	121	0.4
CA	4,441	14.4	NJ	992	3.2
CO	600	2.0	NM	212	0.7
CT	455	1.5	NY	2,950	9.6
DE	67	0.2	NC	658	2.1
DC	113	0.4	ND	82	0.3
FL	1,383	4.5	OH	1,278	4.1
GA	668	2.2	OK	492	1.6
HI	169	0.5	OR	471	1.5
ID	153	0.5	PA	1,277	4.1
IL	1,356	4.4	RI	148	0.5
IN	586	1.9	SC	311	1.0
IA	339	1.1	SD	78	0.3
KS	309	1.0	TN	477	1.6
KY	335	1.1	TX	1,946	6.3
LA	476	1.6	UT	215	0.7
ME	128	0.4	VT	50	0.2
MD	460	1.5	VA	464	1.5
MA	815	2.6	WA	540	1.8
MI	1,124	3.6	WV	199	0.6
MN	564	1.8	WI	510	1.6
MS	270	0.9	WY	96	0.3
MO	679	2.2			
TOTAL NUMBER OF SMALL ESTABLISHMENTS				30,797	100.0 %

B. REVENUE AND GROWTH FORECASTS

- The accounting industry has shown a 10-15% rate of growth for the past several years, but is not expected to exceed that rate for the foreseeable future.
 - Several of the "Big Eight" firms are placing more attention on management advisory services as a growth area, rather than the traditional auditing and accounting; but the Federal Trade Commission and other regulatory agencies have questioned the propriety of a single firm conducting these two activities for the same client.
 - Auditing of municipalities, health service agencies, and banks have been areas of growth for accounting. The larger firms are also expanding into overseas markets.
 - Smaller local and regional accounting firms continue to thrive in their own market areas, offering accounting and auditing services to local businesses.

IV USE OF INFORMATION PROCESSING
AND COMMUNICATIONS EQUIPMENT
AND SERVICES

IV USE OF INFORMATION PROCESSING AND COMMUNICATIONS EQUIPMENT AND SERVICES

A. HOW AUTOMATED IS THE INDUSTRY?

- The accounting industry is a very heavy user of computer, office, and communications equipment and services.
- Ninety-one percent of accounting establishments use computer equipment or computer services or both.
- The only notable differences in the degree of use of computer equipment and services between branch and independent locations are in the smallest establishment size group (i.e., locations with less than 20 employees.)
 - Only one-third of this size branch respondents said that they use computer equipment or services at their location, as larger establishments of the same firm provide these services (see Exhibit IV-1).
 - Ninety percent of this size independent establishments used computer equipment or computer services (see Exhibit IV-2).
 - Medium and large establishments, both independents and branches, are almost completely automated.

EXHIBIT IV-1

USERS OF COMPUTER, OFFICE, AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS - BRANCHES

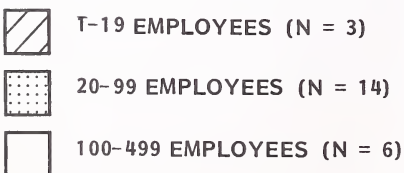
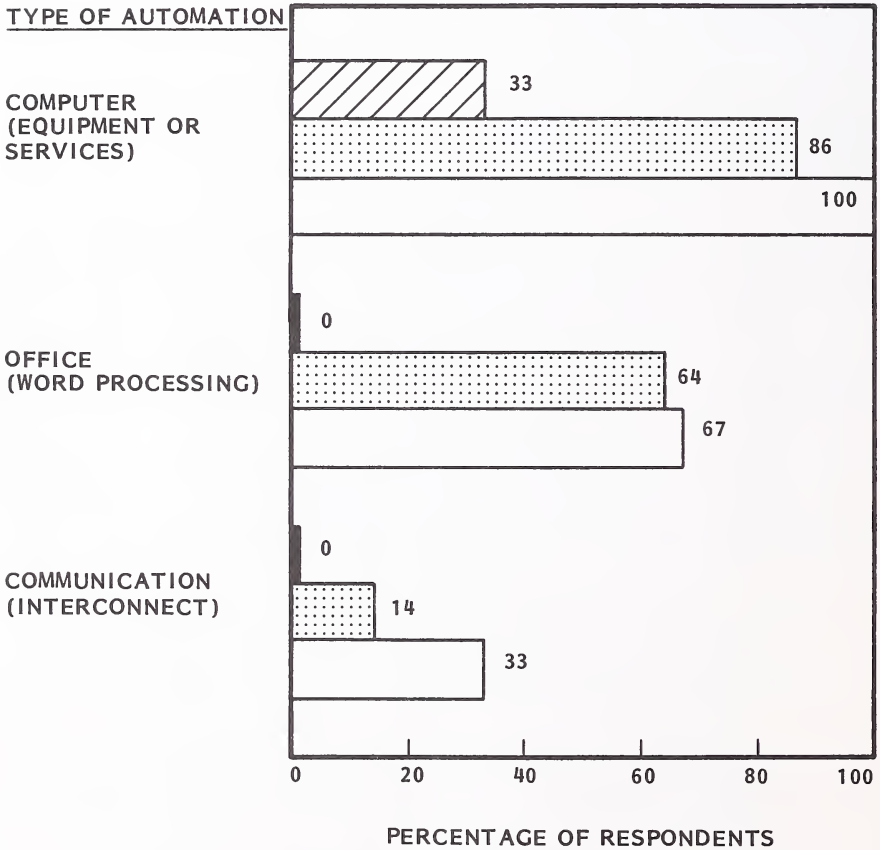
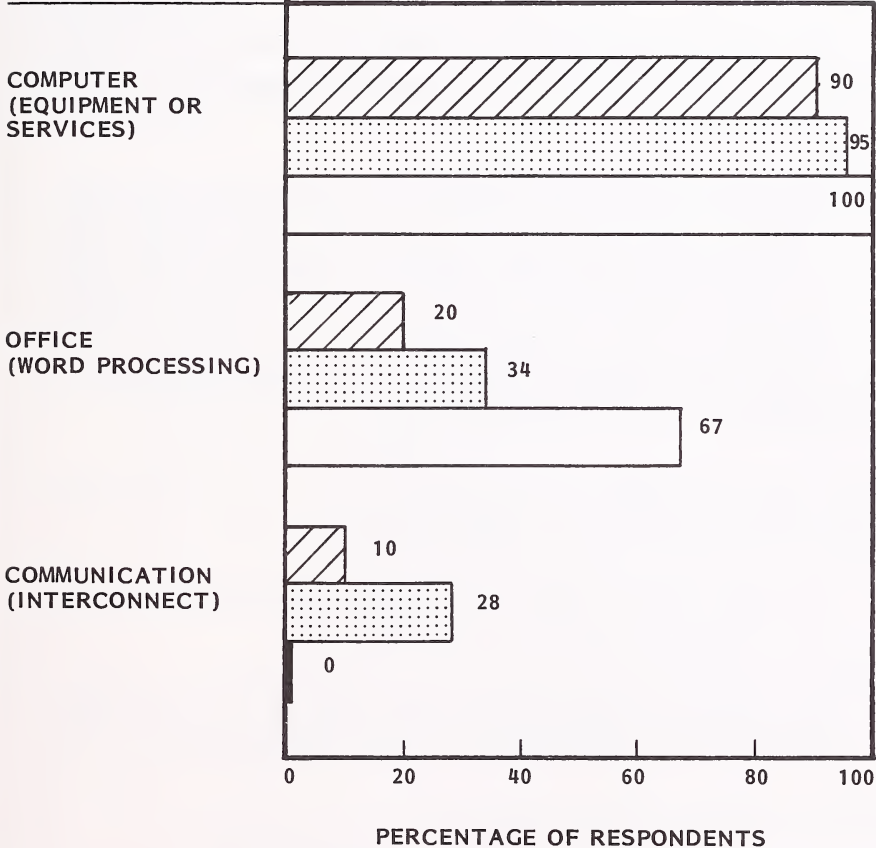


EXHIBIT IV-2

USERS OF COMPUTER, OFFICE, AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS - INDEPENDENTS

TYPE OF AUTOMATION



1-19 EMPLOYEES (N = 10)



20-99 EMPLOYEES (N = 18)



100-499 EMPLOYEES (N = 3)

- Word processing equipment is widely used in the accounting industry, but more by branch locations than by independent establishments. The use of word processing equipment in branches is usually directed or influenced by headquarters.
 - Over one-half of branch respondents and over one-third of independent respondents state that they use word processing equipment.
 - The typical pattern holds true in accounting as in most industries, that larger establishments are more frequently automated than small establishments.
 - However, there is a clear demarcation among branches at the twenty employee level. No branch establishments below that point report using word processing equipment, whereas the "automation line" among independent establishments is less well defined. There is significant penetration of word processing equipment among independents with 1-19 employees, who have more autonomy than branches to purchase this equipment.
- Branches and independents are about equal in their use of communications interconnect equipment at 17% and 20% respectively.
 - Examined separately, large branch establishments show progressively more use of interconnect than small branches do.
 - But independents show a different pattern, with no use of interconnect equipment at all in establishments with 100 employees or more.

B. PENETRATION OF COMPUTER AUTOMATION

- Independent accounting firms are somewhat more likely to be direct users of data processing than branch establishments (see Exhibit IV-3). However, those branches that do not have computer equipment installed on site and do not use RCS nevertheless usually have access to data processing through another branch location.
 - In effect the entire accounting industry uses computers or computer services.
- In the accounting industry, those establishments under 100 employees that use both computer services and computer equipment on-site usually have only "dumb terminal" equipment installed, rather than a full mainframe or mini-computer system.
 - Establishments over 100 employees that use both RCS and EDP equipment on-site tend to have local processing and storage capabilities installed, not just terminals.
 - Independents make proportionately more use of computer services than branches do, largely because branches usually have terminal access to a partnership owned computer.
- Equipment installed at branches ranges from a single teleprinter up through an IBM 370/158, and at independents from a teleprinter up through the Univac BC-7's, IBM System 34's, and similar sized equipment.
 - A listing of the various makes and models of equipment installed is shown in Exhibit IV-4.

EXHIBIT IV-3

RATIO OF USE OF COMPUTER EQUIPMENT AND/OR COMPUTER SERVICES - BRANCHES /INDEPENDENTS

BRANCH LOCATIONS

1-19 EMPLOYEES

20-99 EMPLOYEES

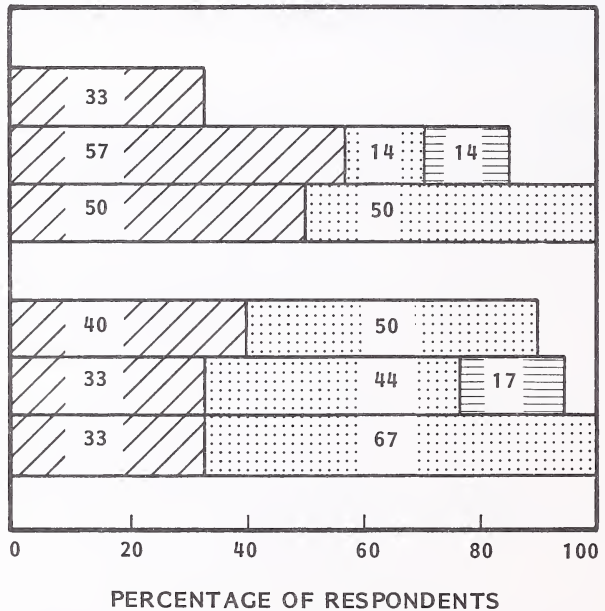
100-499 EMPLOYEES

INDEPENDENT ESTABLISHMENTS

1-19 EMPLOYEES

20-99 EMPLOYEES

100-499 EMPLOYEES



USING COMPUTER EQUIPMENT ALONE



USING COMPUTER SERVICES ALONE



USING BOTH COMPUTER EQUIPMENT AND COMPUTER SERVICES

EXHIBIT IV-4

MAKES AND MODELS OF EDP EQUIPMENT INSTALLED BY RESPONDENTS

CPU's

- BURROUGHS L2000, L8000
- BURROUGHS B80
- DEC 1134
- IBM SYSTEM/32
- IBM SYSTEM/34
- IBM SYSTEM 3/MODEL 10
- IBM 360/30, 40, 50
- IBM 370/158
- LITTON 1240, 1241

TERMINALS

- CONTROL DATA
- DATAPOINT 1500
- DECWRITER II
- EXECUPORT 300
- GE TERMINET
- SYCOR 340, 350

- Another distinction between branches and independents is that independents more often employ specifically designated full-time EDP personnel than branches do, by a margin of about two to one (see Exhibit IV-5).
 - Those branch establishments which have terminal access to the partnership computer normally do not participate in programming or systems development, and do not have technical EDP people on-site.

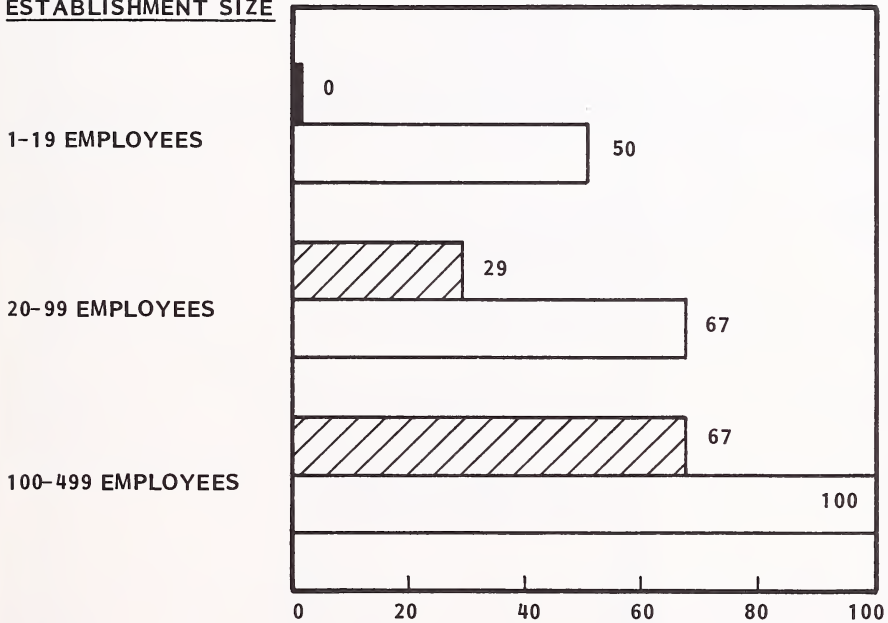
C. FACTORS AFFECTING USE OF COMPUTER SERVICES

- Accounting firms, both branches and independents, regularly use computer services.
 - Although not large numerically, the accounting industry ranks high proportionately as a user of RCS.
 - About one-third of branch respondent establishments and two-thirds of independent respondent establishments report current use of outside computer services (see Exhibit IV-6 and IV-7).
- The level of satisfaction with outside computer services is high.
 - All of the current users of outside computer services would continue to use them in the future.
 - Additional respondents from the small and medium size range of establishments said they would consider using computer services.
 - One respondent's reason for using computer services was: "We'll never purchase a computer, not as long as I'm here. It's impossible to get people to run the thing, let alone understand what they're doing." (medium sized establishment in Chicago).

EXHIBIT IV-5

FULL TIME EDP STAFF
(BRANCHES AND INDEPENDENTS)

ESTABLISHMENT SIZE



PERCENTAGE OF ESTABLISHMENTS THAT
HAVE AT LEAST ONE FULL-TIME EDP EMPLOYEE



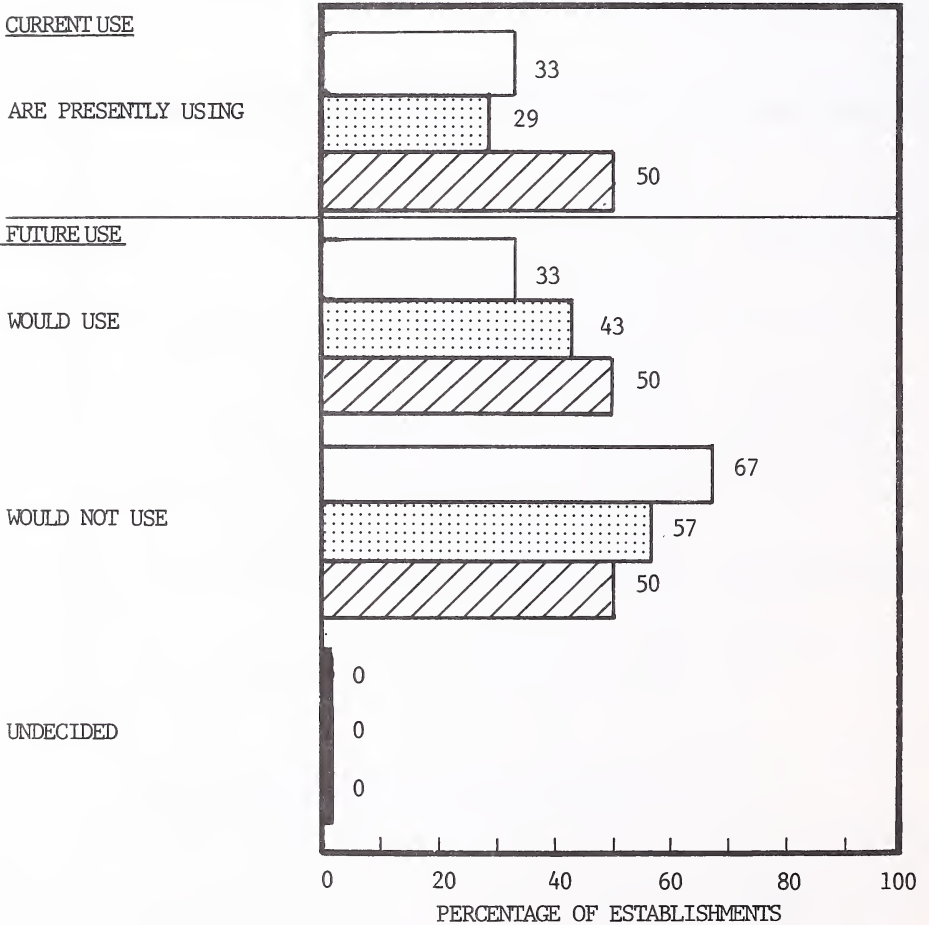
BRANCH (N = 23)



INDEPENDENT (N = 31)

EXHIBIT IV-6

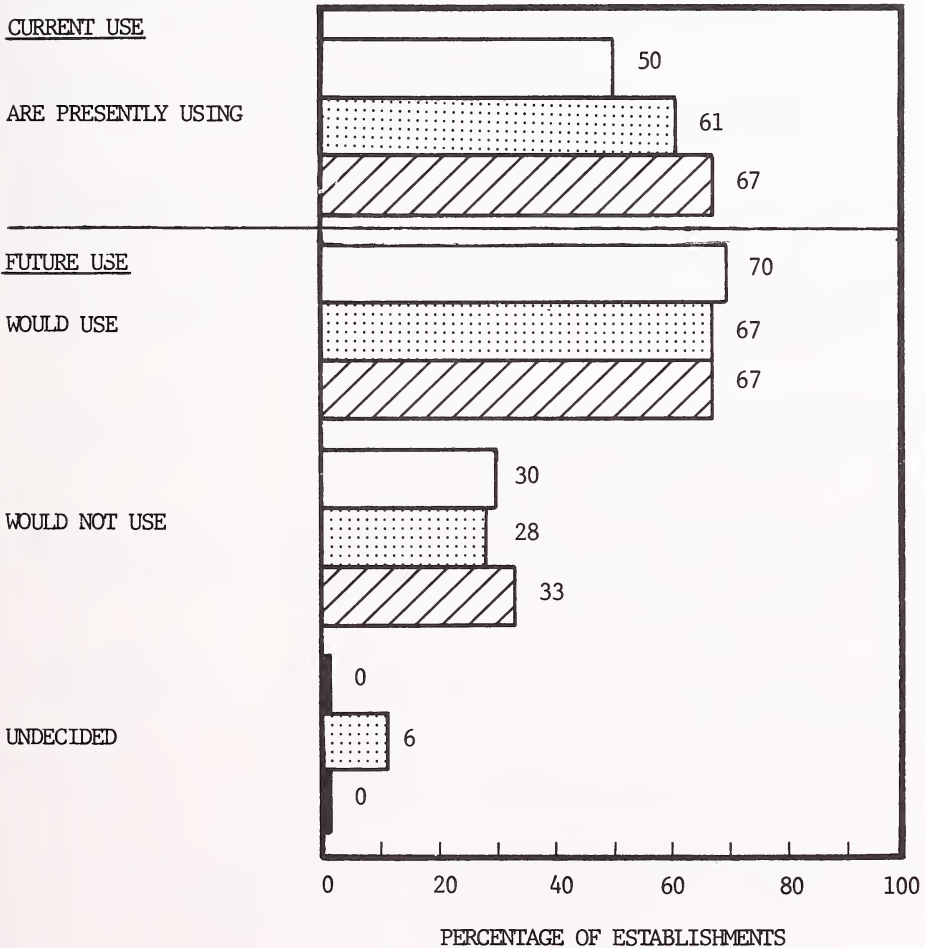
ATTITUDE TOWARDS COMPUTER SERVICES - BRANCHES



- ☐ 1 - 19 EMPLOYEES = 3 RESPONDENTS
- ☒ 20 - 99 EMPLOYEES = 14 RESPONDENTS
- ☐ 100 + EMPLOYEES = 6 RESPONDENTS

EXHIBIT IV-7

ATTITUDE TOWARDS COMPUTER SERVICES - INDEPENDENTS



- ☐ 1 - 19 EMPLOYEES = 10 RESPONDENTS
- ☐ 20 - 99 EMPLOYEES = 18 RESPONDENTS
- ☐ 100 + EMPLOYEES = 3 RESPONDENTS

- Even the branch establishments which most frequently would not use computer services cited access to a partnership-owned computer, or lack of authority to spend, as reasons rather than dissatisfaction with RCS per se (see Exhibit IV-8).
- Half of the independent establishments wanted to have their own computers. Cost was a stated barrier for only 8% of independent respondents (see Exhibit IV-9), and was not a factor for branches.
- One branch respondent said: "We act as an outside service. What do we need one for if we are one?"
- A primary use of RCS is for processing client write-up work. This application is frequently made even when the accounting firms has its own computer, largely for reasons of convenience. Billing for this service is then passed along to the accounting firm's client.

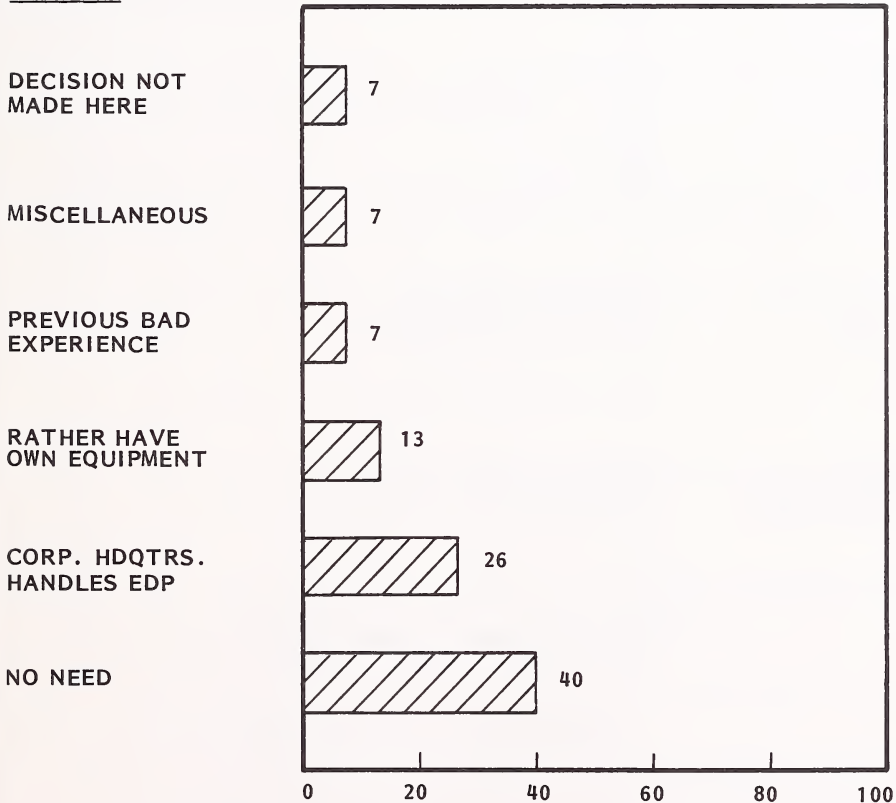
D. PENETRATION OF OFFICE AUTOMATION

- Office automation in its broad definition can include text or word processing, photocopying, photo-typesetting, and/or facsimile transmission, as well as the use of multi-function equipment.
- In this study, the use of text or word processing equipment is considered to be the bellwether for office automation, because:
 - Virtually all establishments used photocopying equipment.
 - There was little or no reported use of photo-typesetting or facsimile equipment.

EXHIBIT IV-8

PERCEIVED BARRIERS TO THE USE OF COMPUTER
SERVICES - BRANCHES

BARRIER



PERCENTAGE OF RESPONDENTS (N = 23)

EXHIBIT IV-9

PERCEIVED BARRIERS TO THE USE OF COMPUTER SERVICES - INDEPENDENTS

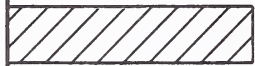
BARRIER

COST



8

NO NEED



42

RATHER HAVE
OWN EQUIPMENT



50

0 20 40 60 80 100

PERCENTAGE OF RESPONDENTS (N = 31)

- Memory typewriters and multi-function equipment used for word processing are considered word processing equipment.

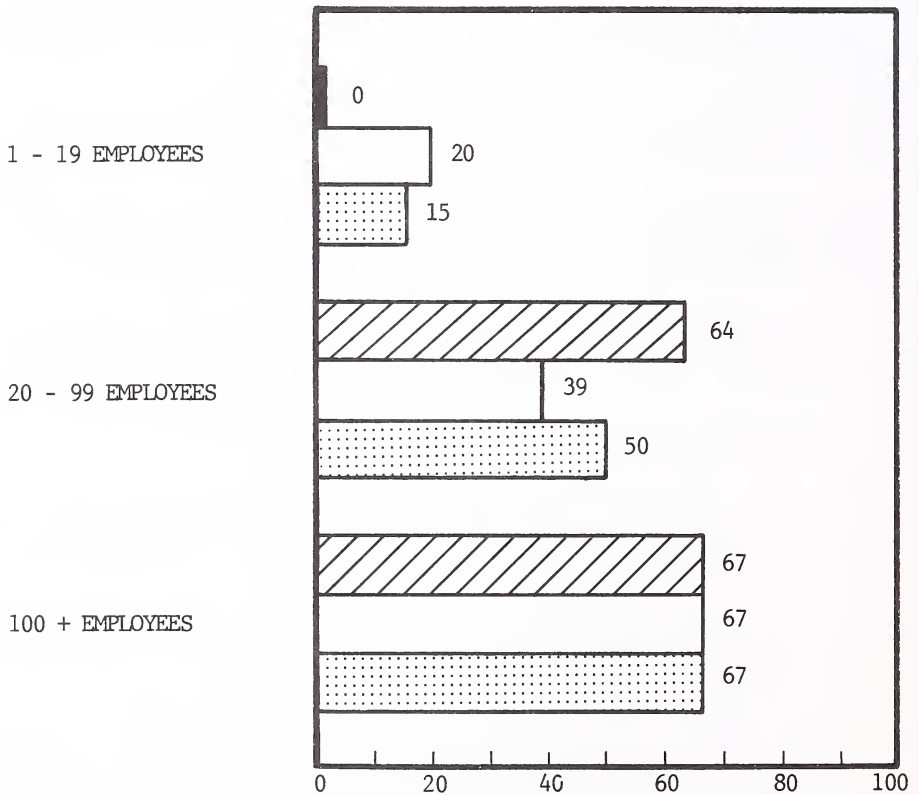
I. WORD PROCESSING EQUIPMENT

- Word processing equipment is widely used by the accounting industry (see Exhibit IV-10).
 - Between one-half and two-thirds of respondents with more than 20 employees used word processing.
 - The most common word processing equipment installed was the IBM Mag Card and Mag Card II typewriters.
- Respondents liked the low price of the IBM Electronic Typing System 60, and were including it in purchase plans. Comments from respondents were:
 - "We have several trial installations of IBM's Electronic Typing System 60."
 - "\$1,775 IBM Electronic Typing System on order."
 - "We bought the Electronic Typing System 60 for self-correcting and mag card features."
 - "When IBM discontinued the Model D, we purchased the Electronic Typing System 60 because we need the 19" carriage."
 - "We recently purchased 2 IBM Electronic Typing System 60's."
- Other brands of word processing equipment installed are shown in Exhibit IV-11. Note that a few respondents were using word processing software on installed computers; but this is the exception rather than the rule.

EXHIBIT IV-10

USERS OF WORD PROCESSING EQUIPMENT (BY SIZE OF ESTABLISHMENT)

ESTABLISHMENT SIZE



PERCENTAGE OF ESTABLISHMENTS

-  BRANCH = 23 RESPONDENTS
-  INDEPENDENT = 31 RESPONDENTS
-  COMBINED = 54 RESPONDENTS

EXHIBIT IV-11

MAKES AND MODELS OF WORD/TEXT PROCESSING EQUIPMENT INSTALLED

- IBM Electronic Typing System 60
- IBM Mag Card Typewriter
- IBM Mag Card II Typewriter
- LANIER
- OLIVETTI
- VYDEC 1400
- XEROX 800
- Word processing on LITTON 1240
- Word processing on UNIVAC BC/7

- Branches showed higher investments in word processing equipment than independent establishments (see Exhibit IV-12).
 - The typical replacement value of word processing equipment installed by independent establishments is \$11,000, representing a single stand-alone word processor.
 - Branches with more than 20 employees typically had several word processors installed, with a typical replacement value of \$16,000-37,000.

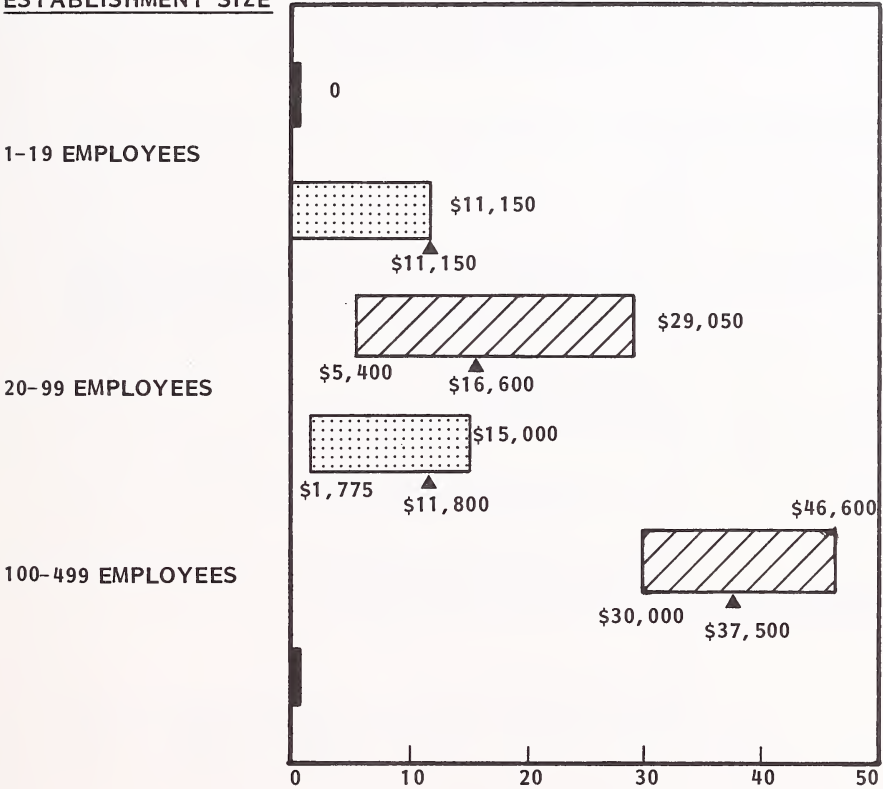
2. MULTI-FUNCTION EQUIPMENT

- Over half of respondents from establishments with more than 100 employees would consider using or are using multi-function equipment (see Exhibit IV-13).
 - Only respondents already using word processing equipment were willing to consider multi-function equipment.
 - No respondents with less than 20 employees would consider using multi-function equipment. Their primary barrier to using multi-function equipment was a stated lack of needs "for fancy equipment."
 - More education of potential customers regarding multi-function equipment availability and capabilities will be necessary to make this equipment attractive to the smallest employee size group of establishments.
- The most desired features for multi-function equipment were combined word processing and computing capabilities. Additional comments on desirable features for multi-function equipment can be found in Exhibit IV-14, and emphasize the need to add data handling features to the text processing capability, not vice versa. Local storage and communications capabilities would be pluses.

EXHIBIT IV-12

CURRENT REPLACEMENT COST OF WORD PROCESSING EQUIPMENT INSTALLED

ESTABLISHMENT SIZE



CURRENT REPLACEMENT COST OF
EQUIPMENT INSTALLED (\$000)

KEY:

← →
BRANCH

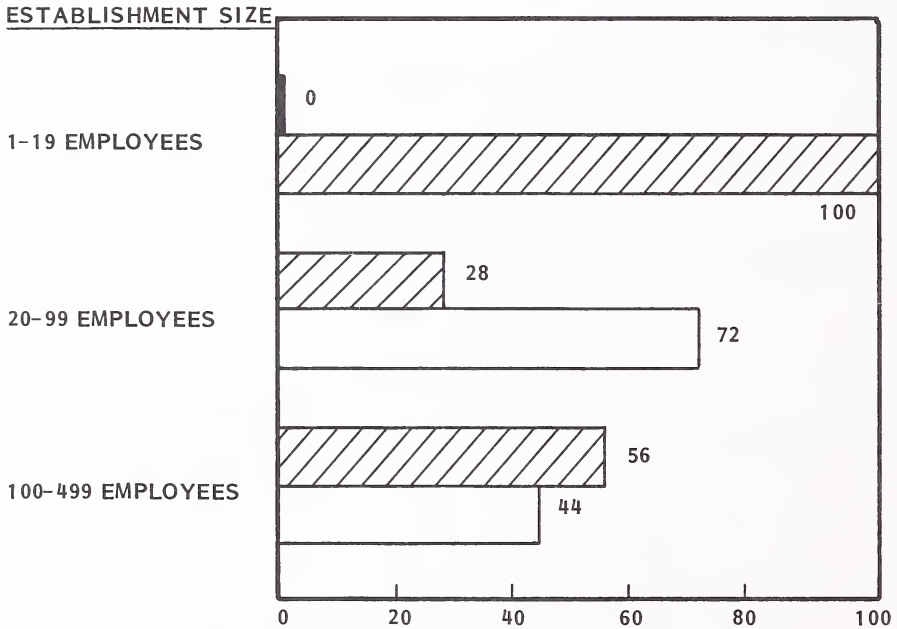
▲ TYPICAL INSTALLED SYSTEM REPLACEMENT COST

INDEPENDENT

▲ TYPICAL INSTALLED SYSTEM REPLACEMENT COST

EXHIBIT IV-13

HOW MANY RESPONDENTS WOULD CONSIDER
USING MULTI-FUNCTION EQUIPMENT ?
(BY SIZE OF ESTABLISHMENT)



PERCENTAGE OF RESPONDENTS (N = 54)



YES, WOULD CONSIDER USING MULTI-FUNCTION EQUIPMENT



NO, WOULD NOT CONSIDER USING MULTI-FUNCTION EQUIPMENT

EXHIBIT IV-14

DESIRABLE FEATURES FOR MULTI-FUNCTION EQUIPMENT

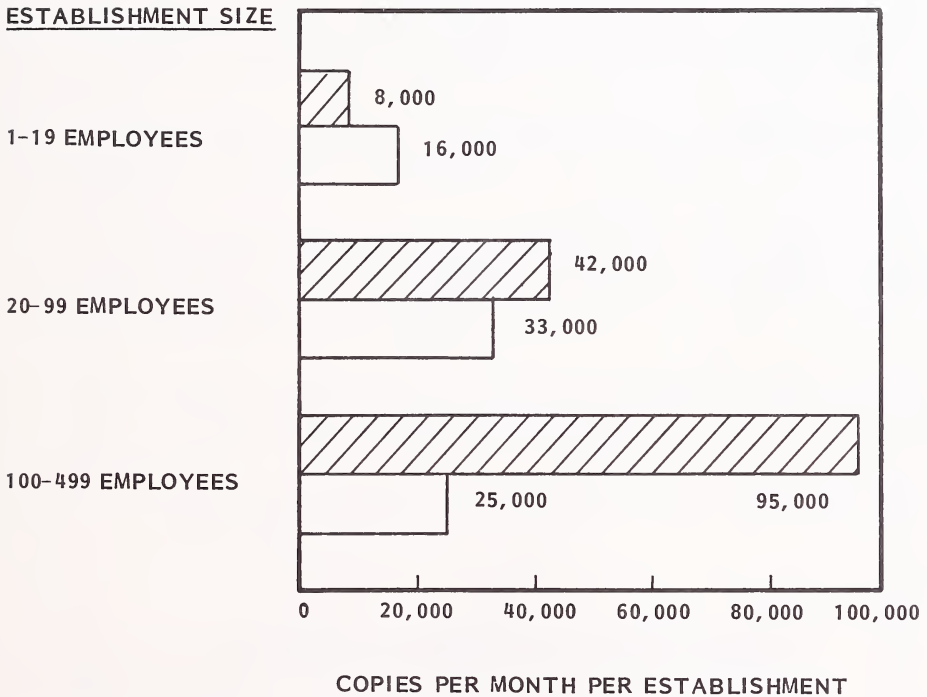
- "Accounting and computing."
- "Communications, word processing, and light computing."
- "Word processing and computing."
- "Handle multi-station word processing and transfer information off files."
- "Communications (in place of telex equipment) and word processing."
- "Word processing and computing with terminal capabilities."
- "Word processing and some number capabilities."
- "Word processing and calculating/computing."

3. PHOTOCOPYING EQUIPMENT

- All respondents had at least one plain paper photocopy machine installed including even the less than 20 employee establishments, which reflects the heavy paperwork orientation of the accounting industry.
 - While there was some mention of coated paper copying, its use was minimal.
- Branches in general showed much heavier use of photocopying than independent establishments did, due to the quality control policies of these firms that require audit concurrence by partners in other locations (see Exhibit IV-15).
 - The average number of copies made by branch establishments ranged from 8,000 per month for the smallest establishments to 95,000 per month for the largest establishments.
 - The range for independents was 16,000 to 33,000, but the medium sized establishments actually reported higher levels of use than did the over 100 employee group.
- Several branch establishments reported using photocopying equipment as in-house print shops to produce reports and so forth.
 - One respondent stated: "Only in the last couple of years were we able to afford the Xerox 9200, when low volume-costing was put into effect."
- When the ratio of copies/month per employee is examined (see Exhibit IV-16), the higher level of use by branch establishments is very clear and becomes relatively stronger for the largest size category of establishments.

EXHIBIT IV-15

AVERAGE NUMBER OF PHOTOCOPIES
MADE PER MONTH
(BY SIZE AND TYPE OF ESTABLISHMENT)

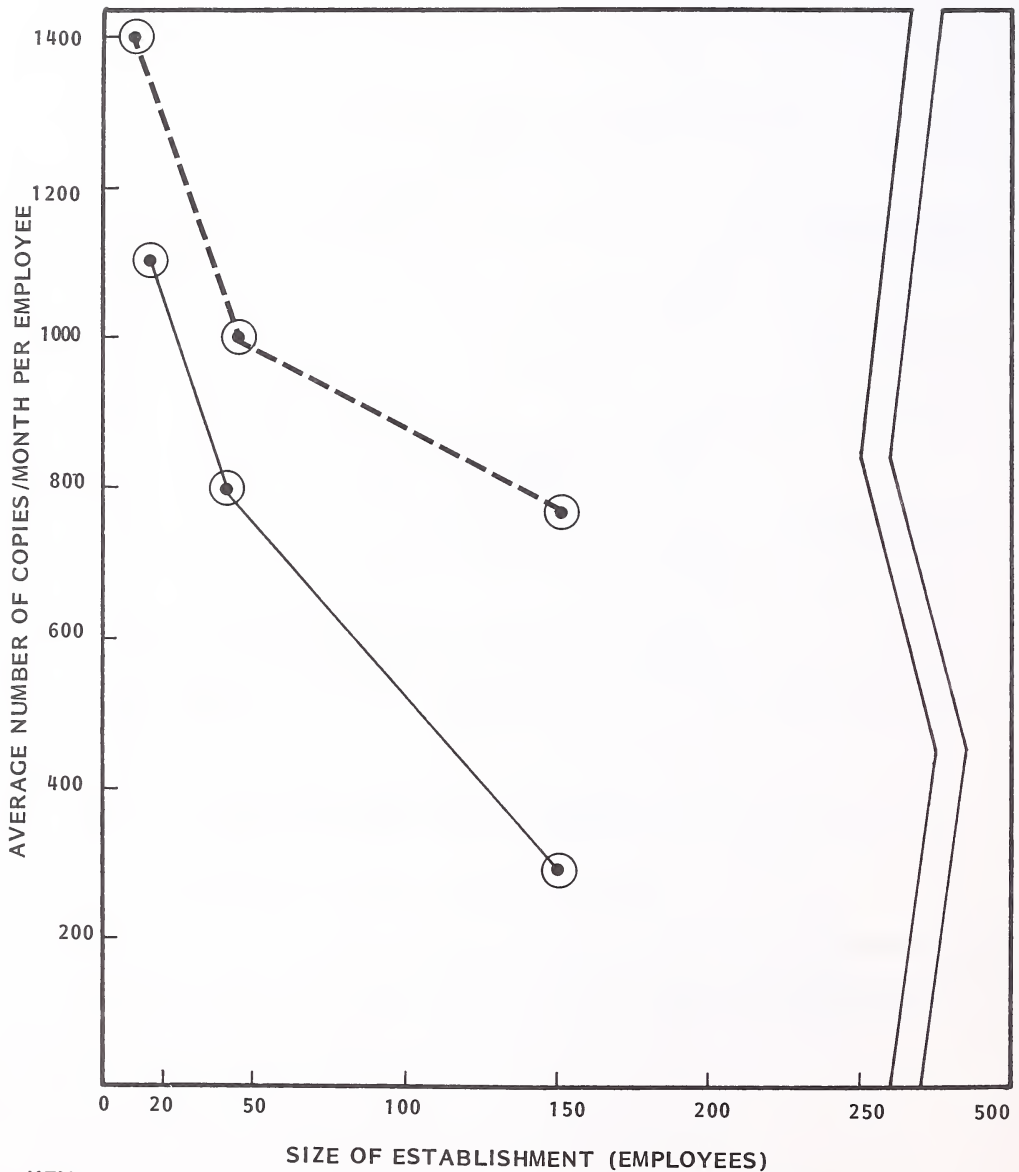


BRANCH (N = 23)



INDEPENDENT (N = 31)

EXHIBIT IV-16
PHOTOCOPIES/MONTH PER EMPLOYEE
(BY SIZE AND TYPE OF ESTABLISHMENT)



KEY
BRANCH - - - - - (N = 23)
INDEPENDENT ——— (N = 31)

KEY
AVERAGE RESPONDENT
ESTABLISHMENT
IN SIZE CATEGORY ●

- Branches consume 1,400 photocopies/month per employee in a nine-employee establishment (the average respondent branch establishment size in the 1-19 employee category).
- Correspondingly, the average thirteen employee independent respondent establishment uses 1,100 photocopies/month per employee.
- At the top end of the scale, the average respondent establishment for both branches and independents has 150 employees. At this level, branches use 780 photocopies/month per employee, compared to only 300 photocopies/month per employee for independent establishments.
- Equivalent current replacement costs of photocopying equipment now installed by respondents is shown in Exhibit IV-17.
 - Costs reflect the copying volume performed by these establishments and range from \$9,000 for small branches up to \$59,700 for branches with 100 employees or more.
- The overwhelming brand of copier preferred by respondents was Xerox, which was in use at 91% of the respondent establishments.
 - No other brand exceeded six percent of respondent establishments (see Exhibit IV-18).

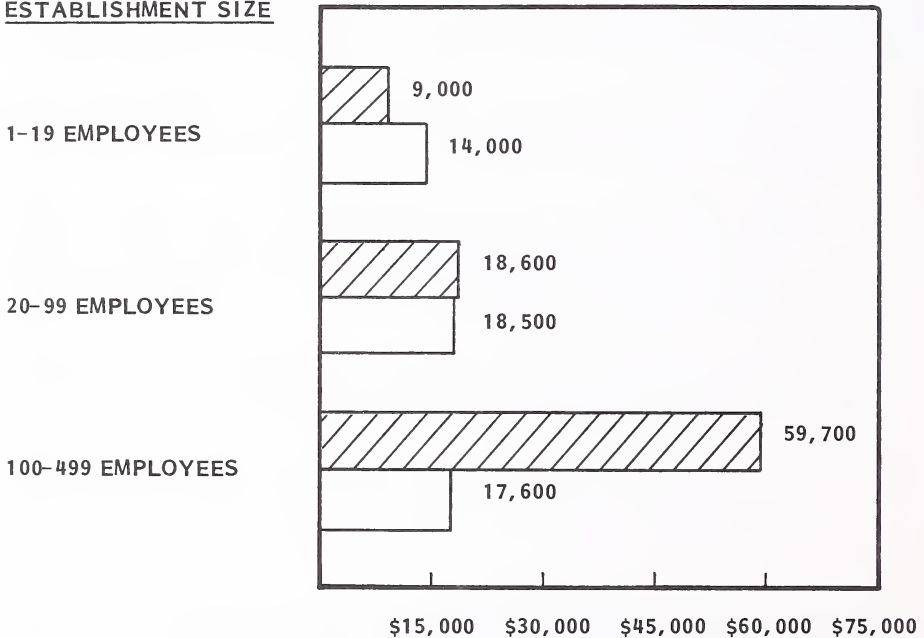
E. PENETRATION OF NON-TELCO COMMUNICATIONS EQUIPMENT AND SERVICES

- Accounting firms are heavy users of communications equipment with switching capabilities, either keyset or PABX (see Exhibit IV-19).
 - Seventy-six percent of branch establishments used switching equipment.

EXHIBIT IV-17

EQUIVALENT CURRENT REPLACEMENT COSTS
OF COPIER EQUIPMENT INSTALLED BY
RESPONDENTS
(BY SIZE OF ESTABLISHMENT)

ESTABLISHMENT SIZE

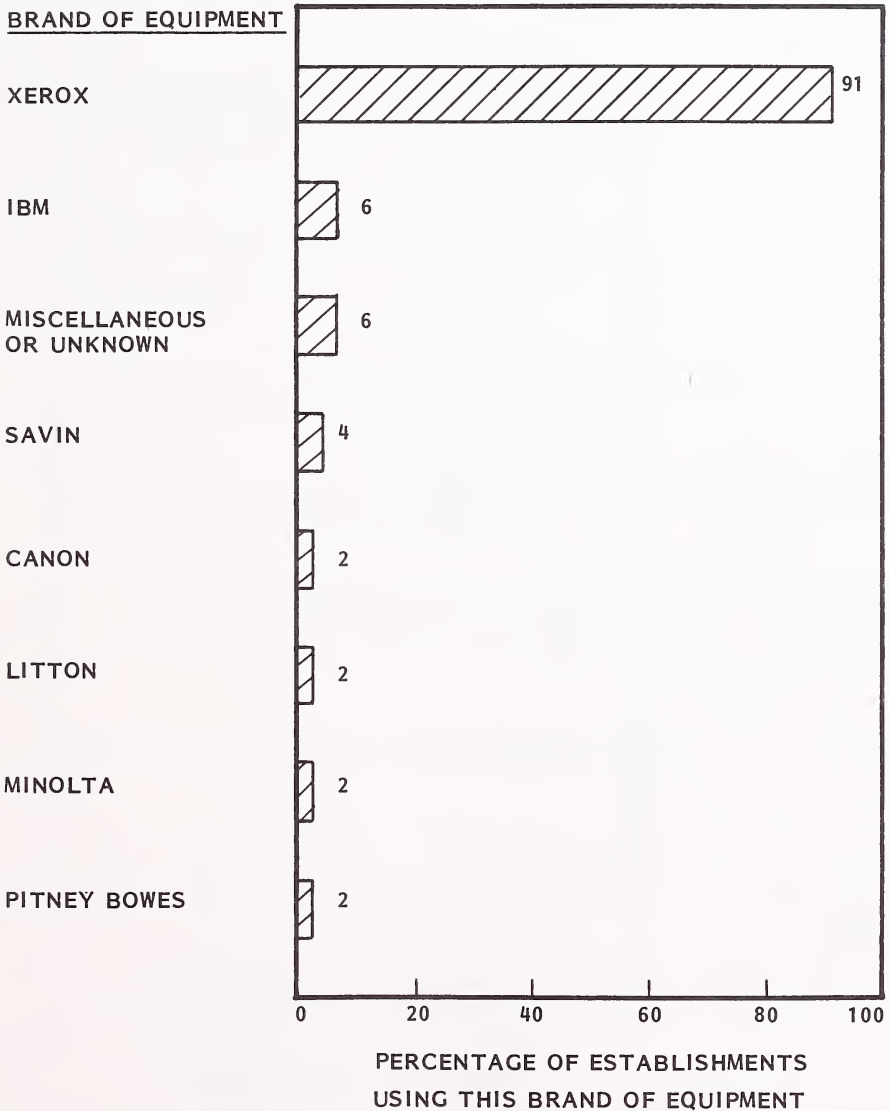


 BRANCH (N = 23)
 INDEPENDENT (N = 31)

REPLACEMENT COSTS OF EQUIPMENT
INSTALLED PER ESTABLISHMENT

EXHIBIT IV-18

BRANDS OF COPIER EQUIPMENT INSTALLED

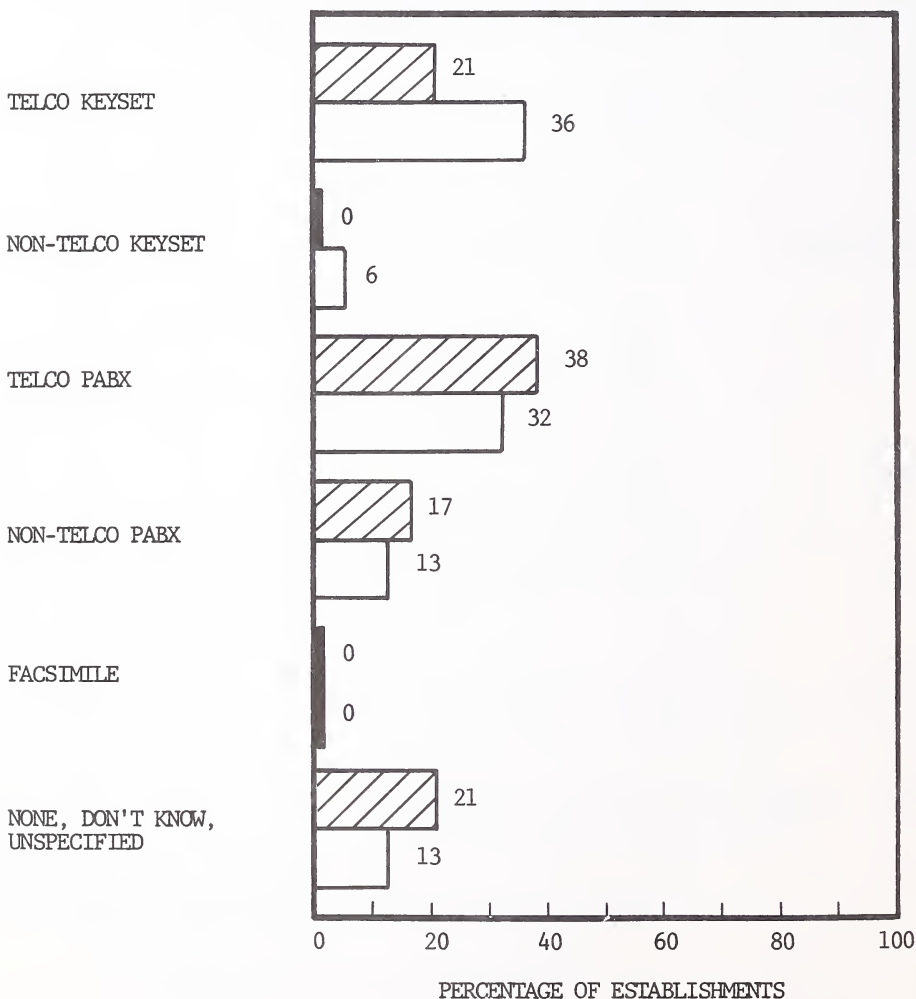


TOTAL EXCEEDS 100% DUE TO MULTIPLE BRANDS AT SOME LOCATIONS

EXHIBIT IV-19

COMMUNICATIONS EQUIPMENT INSTALLED -
BRANCHES AND INDEPENDENTS

EQUIPMENT TYPE



 BRANCH = 23 RESPONDENTS
 INDEPENDENT = 31 RESPONDENTS

- Eighty-seven percent of independent locations used switching equipment.
- Almost 19% of establishments interviewed used non-telephone company supplied equipment.
- The level of use of non-telco equipment is one of the highest by any industry sector, and according to respondents' comments indicates a strong desire for cost effective communications.
- Eighty-two percent of branch respondents reported use of leased lines, primarily for data communications with a partnership-owned computer (see Exhibit IV-20).
- Forty-five percent of independent establishments had leased lines installed, usually to connect a terminal to a computer service.
- Independent respondents did not use other communications services, but 35% of branch respondents used TWX/telex service.
- The primary use of this service is for communication between establishments of the parent company, rather than with other companies.

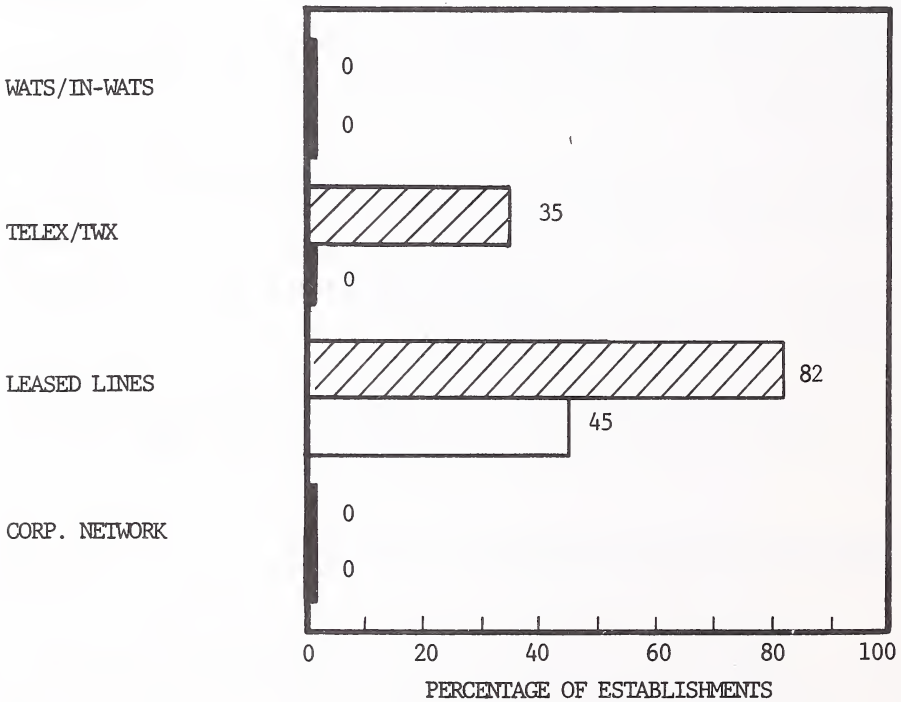
F. COMPUTER, OFFICE, AND COMMUNICATIONS NEEDS

- On the average, 37% of all respondents expressed needs for additional equipment and services (see Exhibit IV-21).
- Larger establishments were more aware of their needs, or had more needs than small establishments.

EXHIBIT IV-20

COMMUNICATIONS SERVICES INSTALLED -
BRANCHES AND INDEPENDENTS

TYPE OF SERVICE



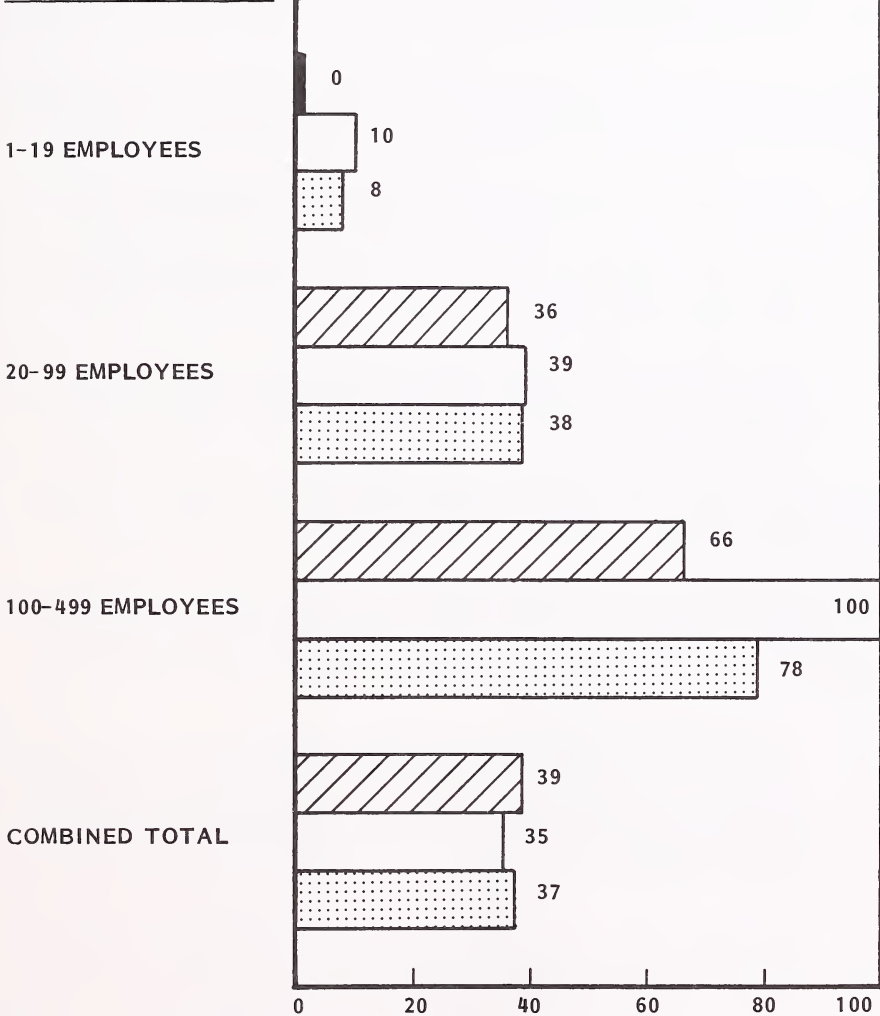
 BRANCH = 23 RESPONDENTS

 INDEPENDENT = 31 RESPONDENTS

EXHIBIT IV-21

NEEDS FOR ADDITIONAL COMPUTER EQUIPMENT AND SERVICES

ESTABLISHMENT SIZE



BRANCHES (N = 23)



INDEPENDENTS (N = 31)



COMBINED (N = 54)

PERCENTAGE OF RESPONDENTS
REPORTING NEEDS

- Over 75% of respondents from establishments with more than 100 employees expressed needs for additional computer equipment and services.
 - Needs expressed by respondents were for more computing capabilities and for word processing software, which again emphasizes the interest in multi-function equipment.
- Almost 40% of respondents from establishments with twenty to ninety-nine employees expressed needs for computer equipment and services.
 - Needs expressed were for computer terminals and additional hardware.
 - Users are looking for more local intelligence, greater access to headquarters, and more "hands-on" equipment.
 - Specific respondent comments on computer related needs are shown in Exhibit IV-22.
- Few needs were expressed by the smallest establishments, which are generally well-served by the use of RCS.
- Forty-eight percent of respondents did not expect to make any computer related improvements within two years. The five-year timeframe was more likely.
 - Changes that are planned by respondent establishments follow the expression of needs, and include installing more terminals and/or larger computers (12% of respondents) or becoming first time users of on-site equipment (6% of respondents).
 - Users also expect to integrate text and data processing within the two to five-year time frame (8% of respondents).

EXHIBIT IV-22

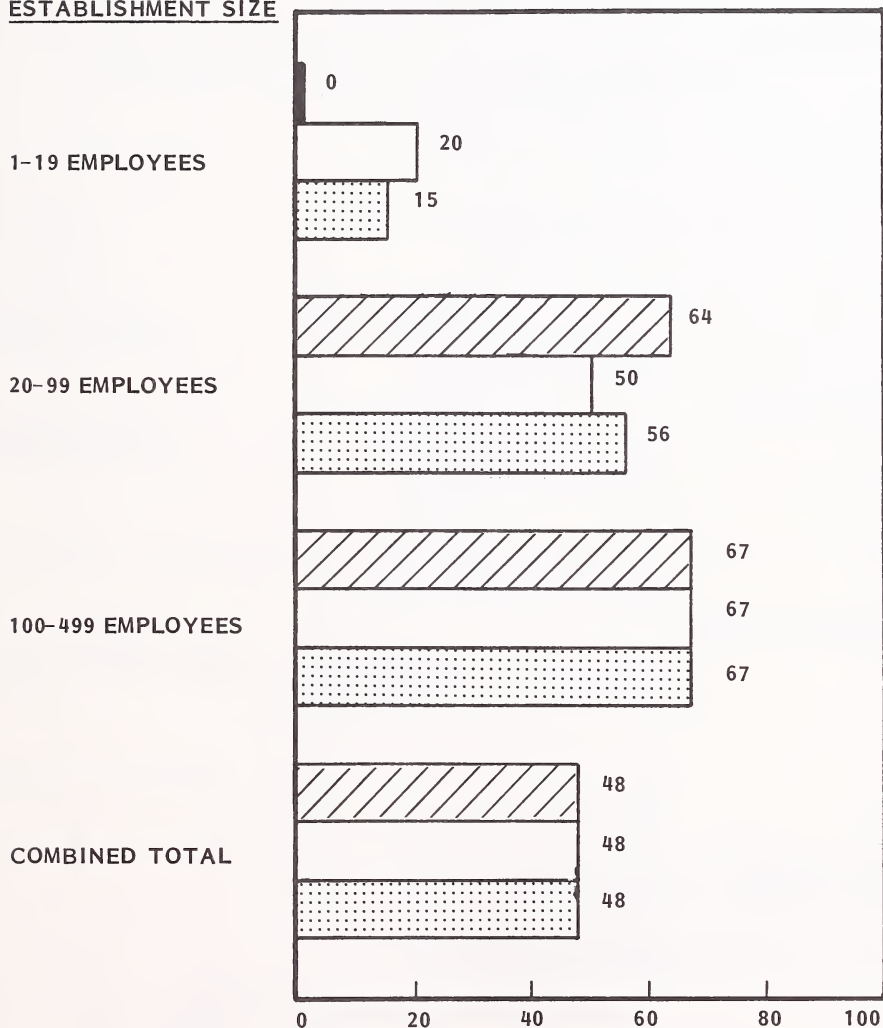
MOST URGENT COMPUTER RELATED NEEDS

- "Terminals for work done through headquarters." (Branch, 45 employees, Idaho.)
- "Will purchase a new computer, because the computer set up currently used is far from adequate. We're very disappointed with IBM support." (Branch, 90 employees, Virginia.)
- "Compatibility of available equipment needs to be improved. What we buy must be compatible with what we already have, and is usually limited to the brand installed in the office." (Branch, 130 employees, Michigan.)
- "Need a larger computer." (Independent, 188 employees, North Carolina.)
- "Currently installing our own in-house system to get away from services. We really like the service, but we can't afford to use them." (Independent, 31 employees, North Carolina.)
- "Install more terminals." (Independent, 60 employees, Wisconsin.)
- "Word processing software package on a new (larger) computer." (Independent, 150 employees, Indiana.)

- Forty-eight percent of branches and independents combined expressed office related needs, primarily for new or improved word processing capabilities (see Exhibit IV-23):
 - The equipment or software would be used to prepare audit reports, financial statements, client billing, and the full range of client-oriented documents.
 - Medium and large firms were essentially equal in expressing these needs, indicating that the establishments which are already automated are most likely to continue generating additional sales opportunities.
 - Respondents who stated needs for word processing expected to install word processing equipment or software within two years.
- Forty-one percent of all respondents expressed communications related needs (see Exhibit IV-24).
 - One hundred percent of respondents from independent respondent establishments with more than 100 employees and 50% of branch respondent establishments in the same size category expressed communications related needs, all for new or increased data communications.
 - Stated needs were simply for increased capacity. Lower costs and/or additional features were not stated as driving factors.
- Both branches and independents feel that there are few barriers to making the desired equipment improvements.
 - A total of 22% of respondents from branches related that centralized decision making or a lack of people and know-how were deterrents to improvements (see Exhibit IV-25).

EXHIBIT IV-23
NEEDS FOR IMPROVEMENTS IN OFFICE
EQUIPMENT AND SERVICES

ESTABLISHMENT SIZE



 **BRANCHES (N = 23)**

 **INDEPENDENTS (N = 31)**

 **COMBINED (N = 54)**

**PERCENTAGE OF RESPONDENTS
REPORTING NEEDS**

EXHIBIT IV-24

NEEDS FOR ADDITIONAL COMMUNICATIONS EQUIPMENT AND SERVICES

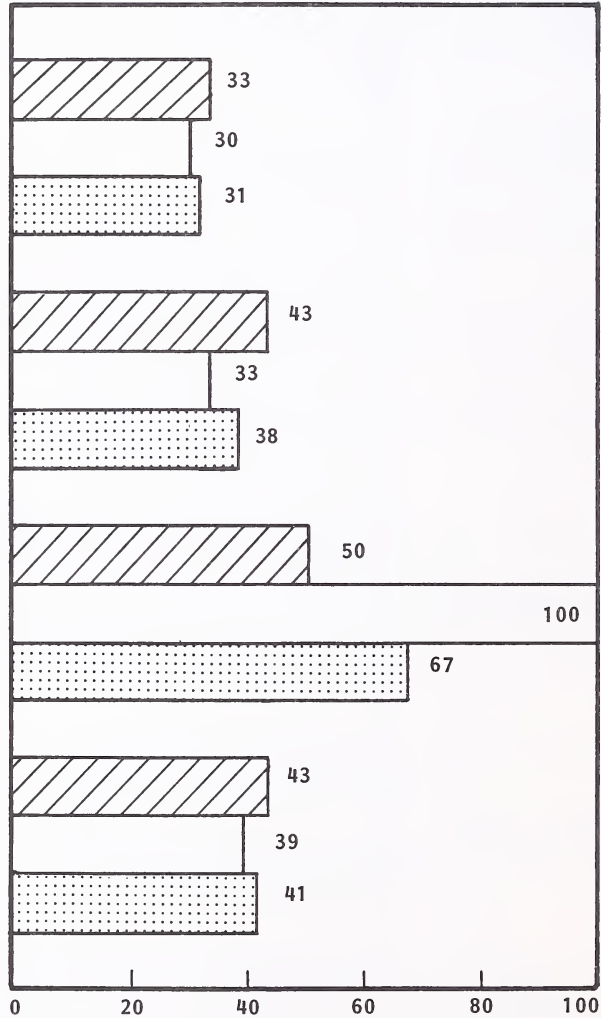
EQUIPMENT SIZE

1-19 EMPLOYEES

20-99 EMPLOYEES

100-499 EMPLOYEES

COMBINED TOTAL



BRANCHES (N = 23)



INDEPENDENTS (N = 31)



COMBINED (N = 54)

PERCENTAGE OF RESPONDENTS
REPORTING NEEDS

EXHIBIT IV-25

PERCEIVED BARRIERS TO EQUIPMENT IMPROVEMENT -
BRANCHES

BARRIER

NOW MAKING
IMPROVEMENTS



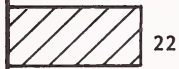
30

NO NEED FOR
IMPROVEMENTS



28

CURRENTLY AUTOMATED



22

DECISION NOT MADE
HERE



18

PEOPLE, KNOW-HOW



4

0 20 40 60 80 100
PERCENTAGE OF ESTABLISHMENTS (N = 23)

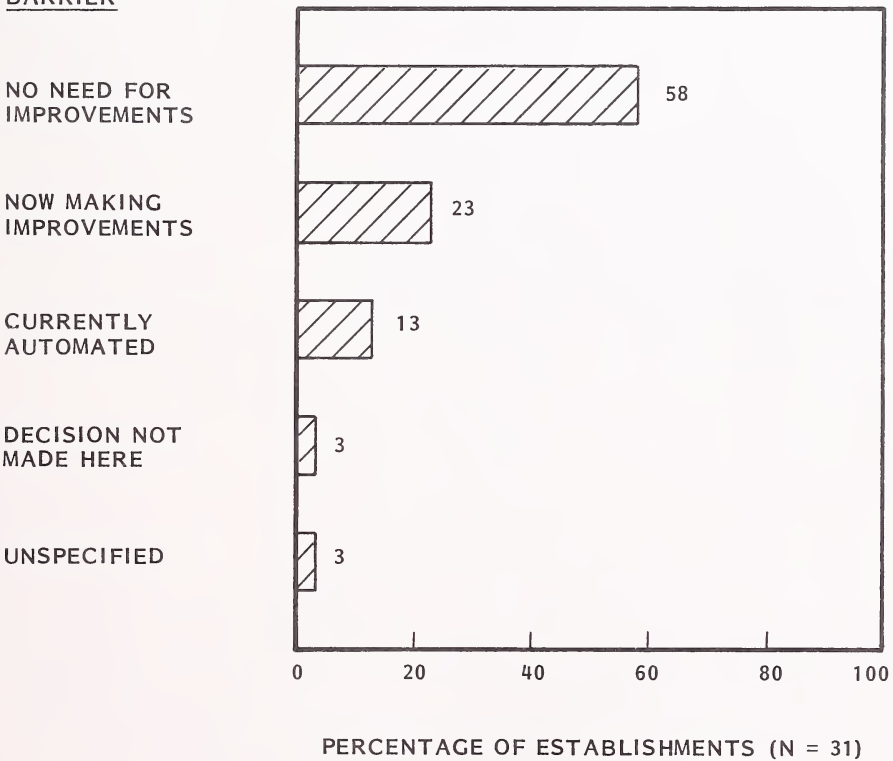
- Only six percent of respondents from independent establishments felt that there were barriers to making immediate equipment improvements (see Exhibit IV-26).

- Lack of needs for immediate equipment improvement could be expected because most respondents already have automated equipment installed. The types of needs that were expressed related to software, services, or other improvements which were not likely to require extensive review or approval processes, but which respondents felt would occur in due time.

EXHIBIT IV-26

PERCEIVED BARRIERS TO EQUIPMENT IMPROVEMENT
(INDEPENDENTS)

BARRIER



V APPLICATIONS ANALYSIS

400739

V APPLICATIONS ANALYSIS

A. FUNCTIONAL USE OF COMPUTERS AND/OR COMPUTER SERVICES

- As previously noted, the use of computer automation is very widespread in the accounting industry, and touches almost every firm in some way or other.
 - Nevertheless many firms are not performing the full range of financial/accounting/auditing computer applications.
- Financial and administrative functions are defined to include:
 - Payroll.
 - Billing.
 - Accounts receivable.
 - Accounts payable.
 - General ledger.
- Accounting industry specific applications are defined to include:
 - Client's accounting.

- Auditing.
 - Tax returns.
 - Staff assistance (random sample generation, etc.).
 - Management information systems.
 - Service bureau for other accounting firms.
 - Project timekeeping.
- Exhibit V-1 shows that even in this highly automated industry the standard financial and administrative functions are noticeably more automated than the specific accounting industry functions.
 - Eighty-seven percent of all establishments use EDP for financial/administrative functions compared to 61% for industry specific functions.
 - As usual, larger establishments are more frequently and more extensively automated than smaller establishments.
 - However, the smaller and medium-sized establishments expect to make some progress in automating additional applications by 1983.
 - Sixteen percent of the 1-19 employee group of establishments report plans to automate additional industry specific functions (see Exhibit V-2).
 - Eight percent of the 1-19 employee group of respondents will automate additional financial/administrative applications, as will seven percent of the 20-99 employee establishments (see Exhibit V-3).

EXHIBIT V-1

DEGREE OF AUTOMATION - INDUSTRY SPECIFIC APPLICATIONS COMPARED TO FINANCIAL/ADMINISTRATIVE APPLICATIONS

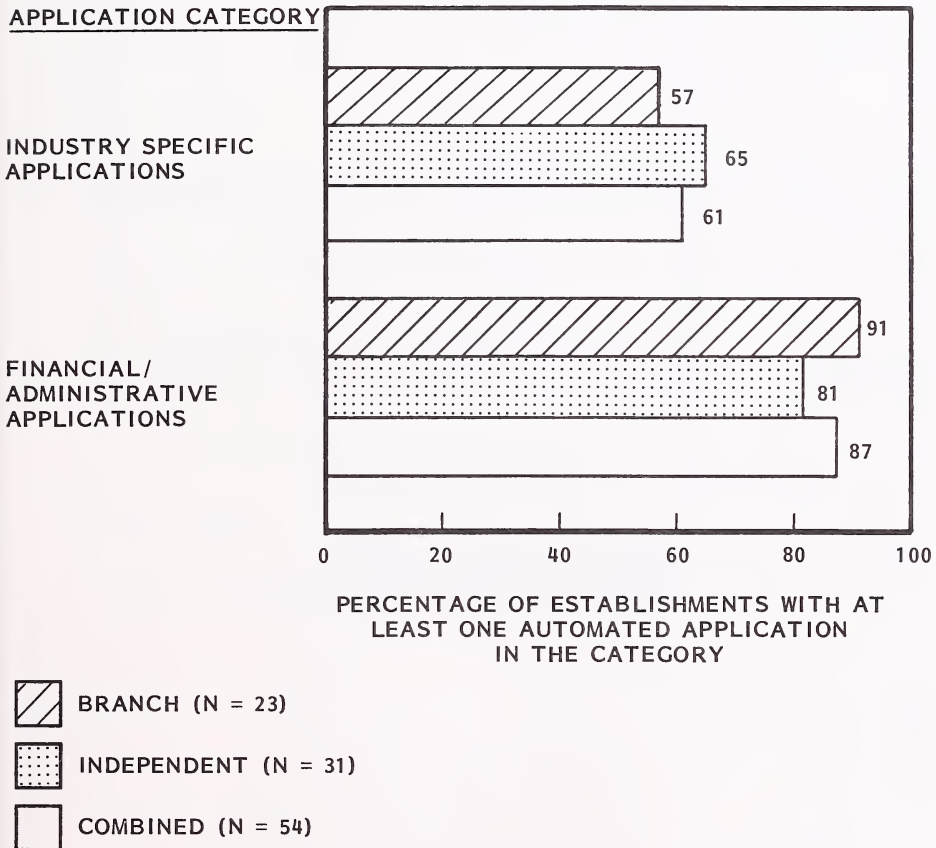
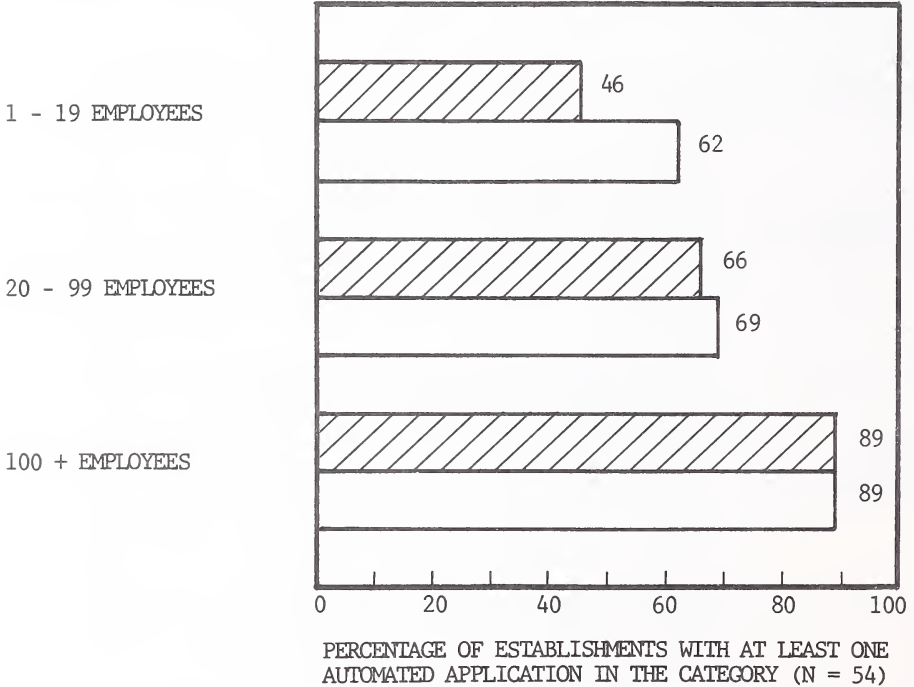


EXHIBIT V-2

USE OF COMPUTERS FOR INDUSTRY SPECIFIC
FUNCTIONS 1978/1983 (BY SIZE OF ESTABLISHMENT)

ESTABLISHMENT SIZE

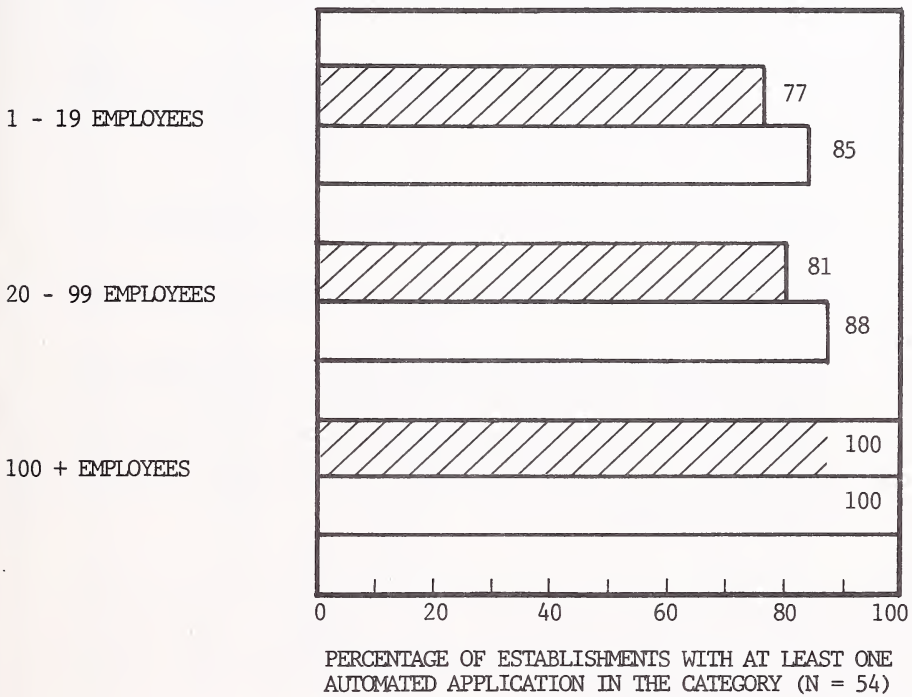


1978
1983

EXHIBIT V-3

USE OF COMPUTERS FOR FINANCIAL/ADMINISTRATIVE FUNCTIONS 1978/1983 (BY SIZE OF ESTABLISHMENT)

ESTABLISHMENT SIZE



 1978
 1983

- All of these growth plans are reported by independent establishments, none by branches (whose EDP development is managed from headquarters).
- Smaller branches currently use EDP only for internal accounting, but presumably could have access to other applications since these applications are already in use at the larger branch establishments.
- When the list of individual financial/administrative applications is examined, there are no surprises in the pattern of automation that is shown in Exhibits V-4, V-5, and V-6.
 - Branches are generally slightly more automated than independents.
 - Larger establishments are more automated than smaller establishments.
 - The fact that the smallest independents have more automated financial/administrative applications than branches of the same size corresponds to the greater use of computer services by small independents, while small branches send their data by mail or telephone to another branch for processing.
- Branches and independents are also quite similar in their use of EDP for industry specific applications (see Exhibit V-7). However, the general level of automation of these functions is far below the corresponding level for financial/administrative applications.
 - Only 39% of independent respondent establishments and 43% of branch respondent establishments report use of EDP for auditing, the most frequent industry specific application.
 - Automated processing of the client's accounting, the next most frequent industry specific application, is done by only 16% of independents and 26% of branch respondents.

EXHIBIT V-4

FINANCIAL/ADMINISTRATIVE APPLICATION ANALYSIS (BY TYPE OF ESTABLISHMENT)

APPLICATIONS	PERCENTAGE OF RESPONDENTS REPLYING AFFIRMATIVELY*						
	INDEPENDENTS (N = 31)			BRANCHES (N = 23)			
	Manual Now	Automated Now	Automated In 5 Years (Additional)	Manual Now	Automated Now	Automated In 5 Years (Additional)	
<u>FINANCE & ACCOUNTING</u>							
Payroll	3%	81%	3%	-	91%	-	
Billing	3	78	3	-	91	-	
Accounts Receivable	3	81	3	-	91	-	
Accounts Payable	3	78	3	-	91	-	
General Ledger	3	81	3	-	91	-	

*On each question there was a varying percentage of 'No Responses.'
Therefore the sum of manual plus automated now may not equal 100%.

EXHIBIT V-5

FINANCIAL/ADMINISTRATIVE APPLICATION ANALYSIS - BRANCHES

APPLICATIONS	PERCENTAGE OF RESPONDENTS REPLYING AFFIRMATIVELY*								
	1 - 19 EMPLOYEES (N = 3)		20 - 99 EMPLOYEES (N = 14)		100+ EMPLOYEES (N = 6)				
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
<u>FINANCE AND ACCOUNTING</u>									
Payroll	-	66%	-	-	93%	-	-	100%	-
Billing	-	66	-	-	93	-	-	100	-
Accounts Receivable	-	66	-	-	93	-	-	100	-
Accounts Payable	-	66	-	-	93	-	-	100	-
General Ledger	-	66	-	-	93	-	-	100	-

*On each question there was a varying percentage of "No Responses." Therefore the sum of manual plus automated now may not equal 100%.

EXHIBIT V-6

FINANCIAL/ADMINISTRATIVE APPLICATION ANALYSIS-INDEPENDENTS

APPLICATIONS	PERCENTAGE OF RESPONDENTS REPLYING AFFIRMATIVELY*								
	1 - 19 EMPLOYEES (N = 10)			20 - 99 EMPLOYEES (N = 18)			100+ EMPLOYEES (N = 3)		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
<u>FINANCE AND ACCOUNTING</u>									
Payroll	20%	80%	10%	22%	78%	5%	-	100%	-
Billing	30	70	10	22	78	5	-	100	-
Accounts Receivable	20	80	10	22	78	5	-	100	-
Accounts Payable	20	70	10	22	78	5	-	100	-
General Ledger	20	80	10	22	78	5	-	100	-

*On each question there was a varying percentage of "No Responses." Therefore the sum of manual plus automated now may not equal 100%.

EXHIBIT V-7

INDUSTRY SPECIFIC APPLICATION ANALYSIS (BY TYPE OF ESTABLISHMENT)

APPLICATION	PERCENTAGE OF RESPONDENTS REPLYING AFFIRMATIVELY*					
	INDEPENDENTS (N = 31)			BRANCHES (N = 23)		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
Client Accounting	84%	16%	-	-	26%	-
Auditing	61	39	6	57	43	-
Tax Returns	-	10	-	-	4	-
Staff Assistance	-	3	-	-	4	-
Management Info. Sys.	-	3	-	-	4	-
Service Bureau	-	10	-	-	9	-
Timekeeping	-	13	-	-	9	-

*On each question there was a varying percentage of "No Responses." Therefore the sum of manual plus automated now may not equal 100%.

- Almost no additional automation of any of these applications is planned by the respondent.
- The smallest branch establishments do not report any use of EDP for auditing, client accounting, or other industry specific applications (see Exhibit V-8).
- However, 60% of the smallest independents are using EDP for auditing, both on their own equipment and via RCS (see Exhibit V-9).
- In general, no applications were restricted either to on-site equipment alone or to RCS alone.

B. TECHNICAL RESOURCE REQUIREMENTS

- Despite the high level of use of computer equipment, computer services, and word processing equipment in the accounting industry when analyzed per establishment, the level is nowhere near as high per employee as it is, for example, in the banking industry.
- There is much less evidence of "hands-on" usage of CRT terminals by accountants.
 - More independent establishments have full-time EDP staff than have their own mainframe or minicomputer.
 - The prevailing attitude of many accountants is that EDP is a technical or clerical function, not a professional function.
- There are great opportunities for vendors to sell more equipment and services to the accounting profession if these attitudes and objections can be successfully overcome.

EXHIBIT V-8

INDUSTRY SPECIFIC APPLICATION ANALYSIS - BRANCHES

APPLICATION	PERCENTAGE OF RESPONDENTS REPLYING AFFIRMATIVELY*								
	1 - 19 EMPLOYEES (N = 3)			20 - 99 EMPLOYEES (N = 14)			100 + EMPLOYEES (N = 6)		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
Client Accounting	-	0	-	-	21%	-	-	50%	-
Auditing	-	0	-	-	43	-	-	67	-
Tax Returns	-	0	-	-	-	-	-	17	-
Staff Assistance	-	0	-	-	-	-	-	17	-
Management Info.	-	0	-	-	-	-	-	17	-
Systems	-	0	-	-	7	-	-	33	-
Service Bureau	-	0	-	-	7	-	-	17	-
Timekeeping	-	0	-	-	-	-	-	-	-

*On each question there was a varying percentage of "No Responses." Therefore the sum of manual plus automated now may not equal 100%.

INDUSTRY SPECIFIC APPLICATION ANALYSIS - INDEPENDENTS

APPLICATION	PERCENTAGE OF RESPONDENTS REPLYING AFFIRMATIVELY*									
	1 - 19 EMPLOYEES (N = 10)			20 - 99 EMPLOYEES (N = 18)			100 + EMPLOYEES (N = 3)			Automated In 5 Yrs. (Addl.)
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Manual	
Client Accounting	90%	10%	-	83%	17%	-	67%	33%	-	-
Auditing	40	60	20	78	22	6	67	33	-	-
Tax Services	100	-	-	89	11	-	67	33	-	-
Staff Assistance	-	-	-	-	-	-	-	-	-	-
Management Info.	-	-	-	-	-	-	-	-	-	-
Systems	-	-	-	-	-	-	-	-	-	-
Service Bureau	-	-	-	-	-	-	-	-	-	-
Timekeeping	-	-	-	-	17	-	-	-	-	-

*On each question there was a varying percentage of "No Responses."
Therefore the sum of manual plus automated now may not equal 100%.

- The growing emphasis on computer auditing and security by client companies in other industries is forcing more accountants to develop "hands-on" experience with computers. Therefore, there will be a growing market for interactive equipment and software that can interface with client-installed computer systems.
 - Such equipment and software should include built in security precautions and communications capability.

- The accounting industry is currently favorably disposed to the use of multi-function equipment only among the larger establishments (100-499 employees). However, it is the smaller establishments who would be more likely to gain from the use of multi-function equipment combining text and data processing, if the price is within range.
 - The clear implication is that more customer education is needed as to the advantages, capabilities, and benefits of multi-function equipment.

VI EQUIPMENT AND SERVICES MARKETS

VI EQUIPMENT AND SERVICES MARKETS

A. SIZE OF MARKET

- Accounting firms on the average spend \$980 per employee per year for:
 - Computer equipment, services, and supplies (not including personnel).
 - Office equipment (not including personnel).
 - Communications equipment and services (not including personnel).
- For the typical sized establishment in each size category, these figures translate into the following annual budgets:

- 1-19 employee category, averaging 4 employees	\$ 3,920
- 20-99 employee category, averaging 39 employees	\$ 38,220
- 100-499 employee category, averaging 203 employees	\$198,940
- Exhibit VI-I shows the total current expenditures for the entire accounting industry, amounting to \$210 million annually.

EXHIBIT VI-1

TOTAL CURRENT EQUIPMENT AND SERVICES EXPENDITURES
OF THE ACCOUNTING INDUSTRY

EXPENDITURE CLASSIFICATION	1 - 19 EMPLOYEES (\$M)	20 - 99 EMPLOYEES (\$M)	100 - 499 EMPLOYEES (\$M)	TOTAL (\$M)
EDP EQUIPMENT SERVICES, AND SUPPLIES	\$ 31	\$12	\$ 7	\$ 50
OFFICE EQUIPMENT	28	10	6	44
COMMUNICATIONS EQUIPMENT AND SERVICES	72	27	17	116
TOTAL	\$131	\$49	\$30	\$210

- This total does not account for personnel to operate any of the equipment, either computer, office, or communications related.
- EDP personnel costs for establishments in this size range normally amount to 150-200% of EDP hardware costs.
- Expenditure information was verified by examining the cost of the installed equipment listed by respondents during interviews.

B. BASIS FOR BUDGETING

- The smallest size establishments (under 20 employees) add or replace equipment very infrequently. Consequently the bulk of automation expenditures for establishments of this size are for normal telephone service plus data processing costs which are mainly passed along to the clients who benefit from the data processing.
- Fluctuations in these costs do not change the overall profit margin of the accounting firm by any substantial amount, and consequently are not controlled very closely.
- Much greater factors for these establishments in choosing equipment or services are such considerations as timeliness and ease of use by existing staff.
- New or additional equipment will only be obtained when its use will mean the virtual elimination of outside costs, no increased personnel costs, and better control of output in those cases where this has become a problem. The general preference of small accounting firms is to use outside computer services rather than manage the "headaches" of an in-house data processing operation.

- Recent availability of small business computer equipment that combines computing and word processing functions (using either vendor-supplied or outside software) has had the effect of making an in-house operation become more attractive for some respondents.
- Budgets for the smallest establishments normally consist of little more than current personnel, fixed costs, and pass-along expenses.
 - Cash flow is a more important consideration to these small firms than return on investment.
- In the medium size category (20-99 employees), differences can be seen between independents and branches in how they obtain equipment and services.
 - Medium size independents follow the characteristics of their smaller counterparts, largely preferring computer services to managing an in-house data processing operation.
 - Medium size branch establishments, on the other hand, tend to follow their larger counterparts in using a very centralized decision-making and purchasing policy.
- Larger branch establishments rely almost entirely on purchasing from national accounts or on decisions made centrally -- as would be expected in a partnership type of organization. However, large branches have a heavy influence on headquarters via recommendations and/or review and selection committees.
 - Larger independents that have more than one location also use centralized purchasing.
- Larger independents treat new equipment as a capital investment, or in any case top management specifically reviews each request for new equipment.

- For a percentage breakdown of respondents' budget techniques, see Exhibit VI-2.
- Additional expenditure comments from both branch and independent respondents are contained in Exhibit VI-3, and illustrate the greater formality in both budgeting and spending that characterizes branches. Independents are more flexible in obtaining equipment and services, because their top management is directly available.

C. POTENTIAL USE OF INFORMATION PROCESSING EQUIPMENT

- Although corporate headquarters and many branches of "Big Eight" accounting firms use computer and word processing equipment, not all small independent accounting establishments use this equipment.
- Reasons for small establishments not using information processing equipment include:
 - The high initial cost of equipment.
 - A tendency of equipment vendors to minimize their cost of sales by selling to the larger users first. For example, headquarters of six of the "Big Eight" firms are all located in New York City. Purchasing for approximately three hundred "Big Eight" branches is done through their corporate headquarters.
- The amount of equipment installed in small establishments is thus a function of:
 - The threshold level of equipment costs themselves.
 - The improved price/performance ratio of new equipment.

EXHIBIT VI-2
BASIS FOR EXPENDITURES

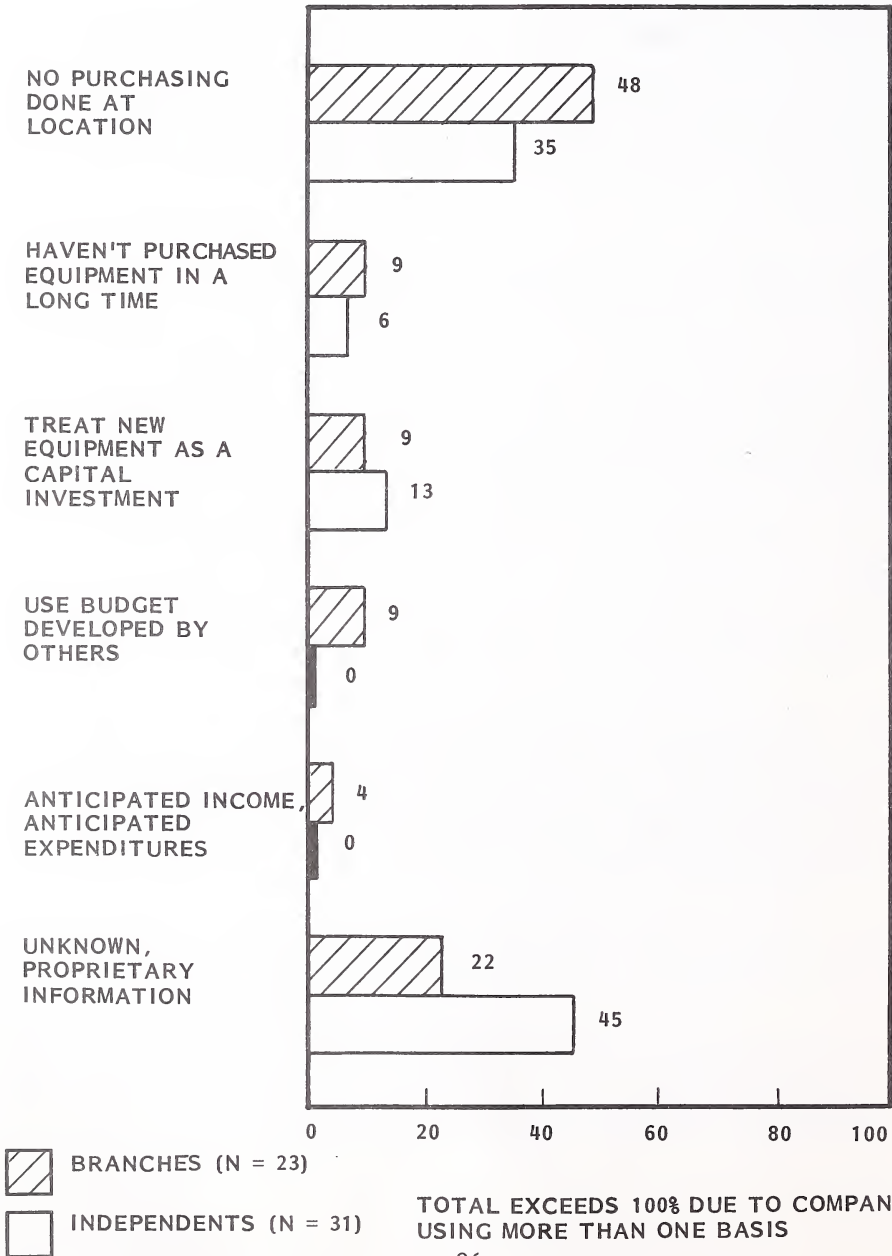


EXHIBIT VI-3

EXPENDITURES - COMMENTS FROM RESPONDENTS

INDEPENDENTS

- "There are no budgets. We purchase as needed."
- "We purchase as needed. There is no expenditure pattern."
- "Buy as needed through headquarters."

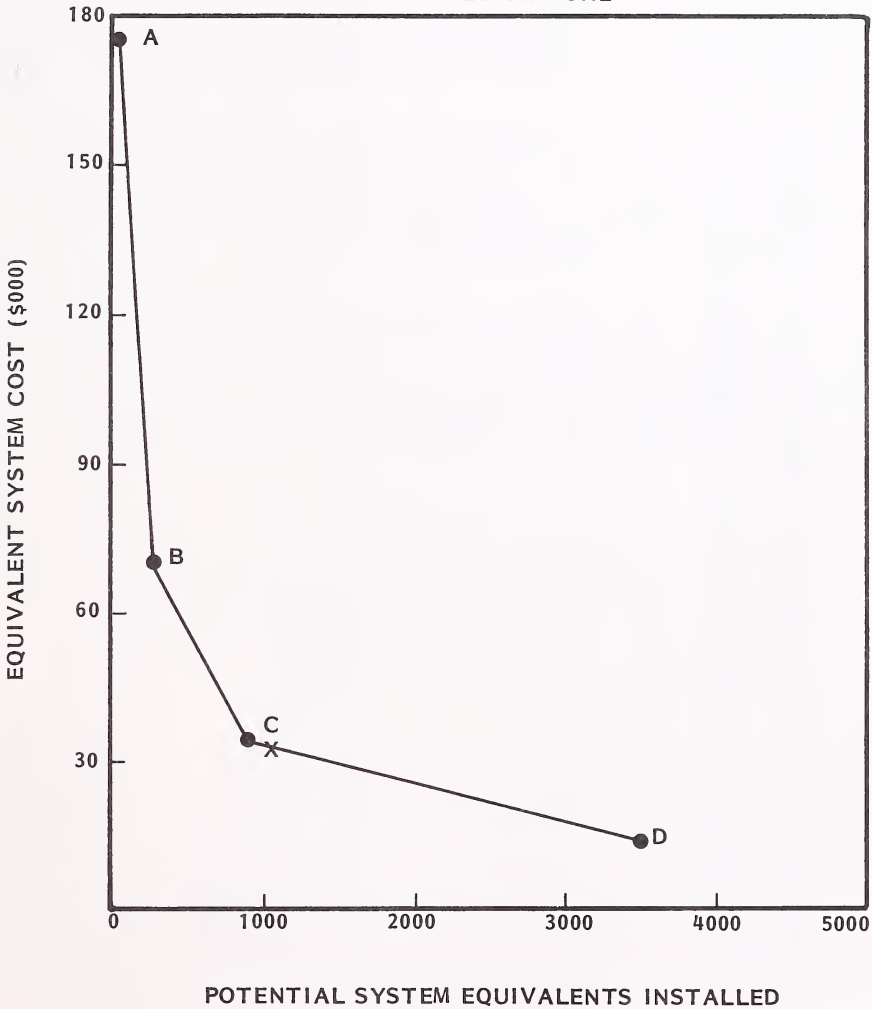
BRANCHES

- "Budgets are annually prepared; based on income for office and anticipated necessary expenditures."
- "If an expense is not budgeted, the partner in charge of an office can make a decision if the item is not too large (\$1,000 in one year.) Larger unbudgeted expenses must be approved by headquarters."
- "All expenditure decisions are made in New York."
- "All expenditures are through New York."
- "All equipment is purchased off national accounts through New York headquarters."
- "If an item is needed, it can be purchased locally if funds are allocated from headquarters."
- "Can purchase off budget if item is justifiable."
- "Everything is on lease, so no control is necessary."

- A substitution of improved equipment performance for the constantly increasing costs of personnel.
- The number of potential users of EDP equipment, as a function of the cost of this equipment, is shown for small establishments within the accounting services sector in Exhibit VI-4. This curve shows that the potential number of computer systems in use will increase from about fifty systems if the cost is \$175,500 per system to over 3,500 systems if the cost drops to \$14,040 per system. (Although \$33,000 is the average cost of presently installed systems, \$175,500 was chosen at the top end of the scale to permit a curve to be drawn.)
- Implications of this potential installation curve are that:
 - A decrease in system cost by a factor of 12.5 (from \$175,000 down to \$14,040) results in an increase in the potential users of equipment by a factor of 76.6 (from 46 systems up to 3525 systems).
 - The rapid growth in the number of small establishments using EDP equipment is due to the fact that there are many more companies of 20 employees in size than there are companies of 250 employees in size. As the cost of EDP equipment drops, the threshold of its affordability by small companies is crossed, and more firms become potential users.
 - Larger companies (250 employees in size) will use larger computer systems than small companies (50 employees in size). Since a measure of the EDP equipment potential is required, it was assumed that a large establishment will spend the same amount per employee as a smaller firm. Thus, the curve in Exhibit VI-4 was drawn in computer equivalents, resulting in a small establishment of 250 employees using the equivalent of several smaller computers, while a smaller firm of 50 employees uses only one computer. This type of presentation more accurately portrays the expenditure of EDP dollars by the user.

EXHIBIT VI-4

POTENTIAL FOR COMPUTER INSTALLATION AMONG
ACCOUNTING INDUSTRY SMALL ESTABLISHMENTS
WITH 20 EMPLOYEES OR MORE



X = CURRENT OPERATING POINT

- Exhibit VI-4 shows the potential use of EDP equipment as a function of system price, and Exhibit VI-5 shows the same information in tabular form derived in the following manner:

- An average annual expenditure of \$234 per employee on computer equipment and services was used. (Chapter II-A.) The assumption was made that this amount would produce an equal utility value whether spent all on equipment or divided between equipment and services.
- The purchase price of a computer system was divided over three years to determine its annual cost; e.g., a \$66,000 computer system has an annual cost of \$22,000. Carrying charges are disregarded because they will vary for each individual establishment.
- The number of employees in the establishment was multiplied by \$234 per employee to calculate the potential establishment expenditures for EDP equipment. If this amount was more than one-third of the potential computer cost the establishment was classified as a potential user.
- The potential market value for EDP equipment divided by the cost of the computer yields the number of computer equivalents for the establishment size. This number when multiplied by the number of establishments (as a function of size) becomes the total number of computer equivalents installed.
- Note that no allowance was made for firms of under 20 employees, which makes the estimate conservative at the low end of the scale. If no increase in EDP expenditure per employee is experienced, this equipment does not become attractive to the "average" small (4 employee) firm until the system costs drop to \$2,808. However, establishments with 19 employees could afford it at \$13,338.

EXHIBIT VI-5

POTENTIAL MARKET VALUE FOR COMPUTER INSTALLATIONS AMONG ACCOUNTING INDUSTRY SMALL ESTABLISHMENTS WITH 20 EMPLOYEES OR MORE

REFERENCE POINT	MINIMUM NUMBER OF EMPLOYEES/ESTAB. SIZE GROUP	SYSTEM COST (\$ 000)	MARKET VALUE (\$ MIL)	SYSTEM EQUIVALENTS
A	250	\$ 175.5	\$ 8.1	46
B	100	70.2	20.0	286
C	50	35.1	31.3	892
D	20	14.0	49.5	3525

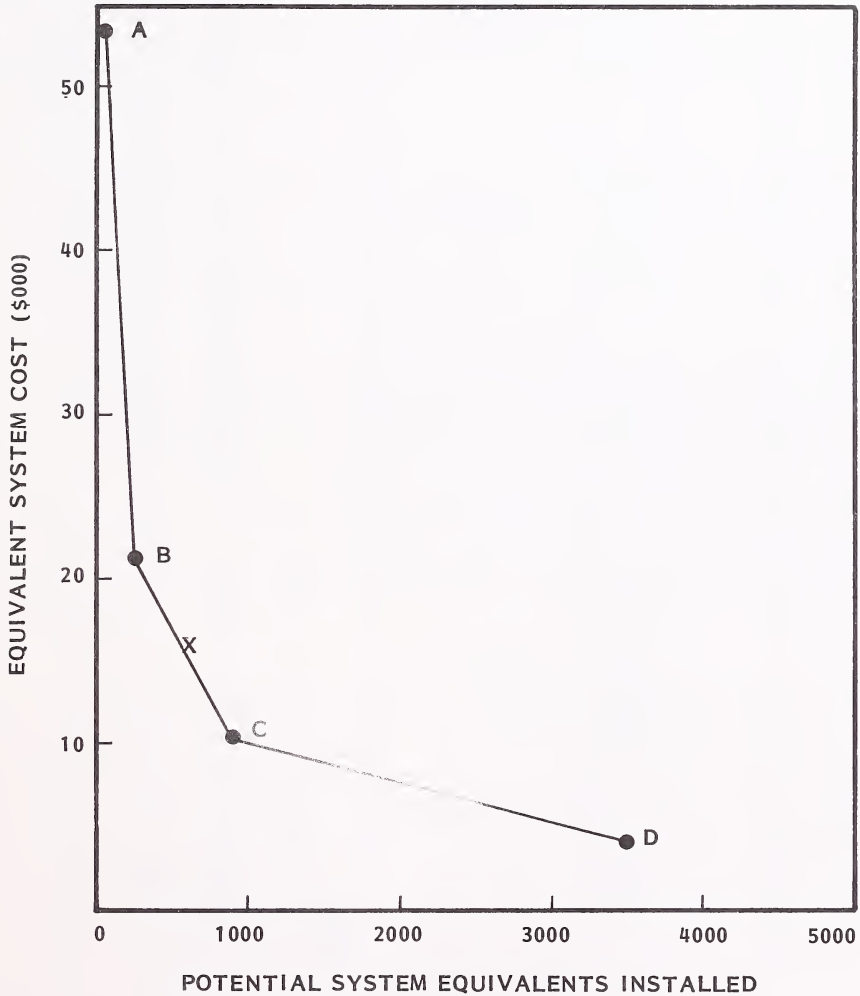
LEGEND

- (1) SIZE GROUPS: 20 - 49, 50 - 99, 100 - 249, 250 - 499.
- (2) SYSTEM COST = MINIMUM NUMBER OF EMPLOYEES/ESTABLISHMENT (1) x \$234/EMPLOYEE (AVERAGE ANNUAL EDP EXPENDITURE/EMPLOYEE) x 3 (NUMBER OF YEARS AMORTIZATION) (EG: $250 \times 234 \times 3 = 175,500$).
- (3) MARKET VALUE = \$234 x 3 x NUMBER OF EMPLOYEES IN EACH ESTABLISHMENT SIZE CATEGORY AND ALL LARGER CATEGORIES. (EG: "A": $\$702 \times 11,538 = \$8.1M$; "B": $\$702 \times 28,490 = \$20.0M$)
- (4) SYSTEM EQUIVALENTS = MARKET VALUE (3) ÷ SYSTEM COST (2) (EG: $\$20.0M \div 70,200 = 286$)

- The potential curve for EDP equipment agrees with INPUT's current penetration estimates, which show 80% or 960 establishments of 20-499 employees having on-site computing equipment at an average system equivalent price of \$33,125; i.e., near point "C" on Exhibit VI-4.
- The same methodology has been applied to office automation (word processing) and the results are shown in Exhibit VI-6 as a graph and VI-7 as a table. Assumptions are the same as above, plus:
 - One-third of the \$205 current annual expenditures per employee on office equipment is available for word processing.
 - A three-year payout, not adjusted for a growth in the work force, maintenance, or carrying charges, makes the basis a conservative estimate.
- The office automation curve agrees with INPUT's current penetration estimate of 44%, or 540 system equivalents installed at an average cost of \$17,000 per user establishment. (Present users are using multiple systems which cost from \$10,000 to \$20,000 each.)
 - This current operating point is halfway between points "B" and "C" on Exhibit VI-6.
 - Note that again no allowance was made for firms of under 20 employees, which makes the estimate conservative at the low end of the scale. Here the threshold for the "average" small (4 employee) establishment is a system cost of \$820, or roughly the cost of an IBM Selectric typewriter. However, the 19 employee establishment can afford a system cost of \$3,895, well above the \$1,775 price of the IBM Electronic Typing System 60. Thus this end of the market has potential for very rapid growth if the degree of automation provided by this relatively simple equipment proves to be adequate for accounting establishments.

EXHIBIT VI-6

POTENTIAL FOR OFFICE AUTOMATION AMONG
ACCOUNTING INDUSTRY SMALL
ESTABLISHMENTS WITH 20 EMPLOYEES OR MORE



X = CURRENT OPERATING POINT

EXHIBIT VI-7

POTENTIAL MARKET VALUE FOR OFFICE AUTOMATION AMONG ACCOUNTING INDUSTRY SMALL ESTABLISHMENTS WITH 20 EMPLOYEES OR MORE

REFERENCE POINT	MINIMUM NUMBER OF EMPLOYEES/ESTAB.	SYSTEM COST (\$)	MARKET VALUE (\$ MIL)	SYSTEM EQUIVALENTS
A	250	\$ 51,250	\$ 2.4	46
B	100	20,500	5.8	286
C	50	10,250	9.1	892
D	20	4,100	14.5	3525

LEGEND:

- (1) SIZE GROUPS: 20 - 49, 50 - 99, 100 - 249, 250 - 499.
- (2) SYSTEM COST = MINIMUM NUMBER OF EMPLOYEES/ESTABLISHMENT (1) x \$68.3/EMPLOYEE (AVERAGE ANNUAL WP EXPENDITURE/EMPLOYEE) x 3 (NUMBER OF YEARS AMORTIZATION) (EG: $250 \times 68.3 \times 3 = 51,250$)
- (3) MARKET VALUE = \$68.3 x 3 x NUMBER OF EMPLOYEES IN EACH ESTABLISHMENT SIZE CATEGORY AND ALL LARGER CATEGORIES. (EG: "A": $205 \times 11,538 = \$2.4M$; "B": $205 \times 28,490 = \$5.8M$)
- (4) SYSTEM EQUIVALENTS = MARKET VALUE (3) ÷ SYSTEM COST (2) (EG: $\$2.4M \div 52,250 = 46$)

D. MARKET GROWTH FORECASTS

- Small businesses generally do not plan their information automation expenditures five years forward, even in the accounting industry. In fact since accounting is a service industry and highly client dependent, the clients' budgets also have a direct impact on the equipment and services purchased by accounting firms. A forecast based on accounting establishment budgets would not be meaningful.
- On the other hand the overall size of the market, together with the degree of penetration of information processing automation is growing rapidly due to the introduction of smaller, cheaper, and more cost effective products. Thus, a forecast made on the basis of industry sector growth would be too low.
- The best way to forecast the market for EDP and office automation equipment is to examine the effect of the introduction of equipment which is improving its price/performance ratio by 15% per year for EDP and 10% per year for text editing equipment. Then the future potential market penetration as a function of the price/performance improvement is calculated and converted to a growth percentage per year. (Note: These improvements are smaller than in the large mainframe area because of the large component of mechanical peripherals).
- The 15% annual improvement in the price/performance ratio for EDP equipment results in a cost decrease by a factor of 2.0 between 1978 and 1983. For office automation equipment, the 10% annual improvement in the price/performance ratio results in a cost decrease of 1.6 by 1983. The average on-site computing equipment now in use by accounting firms has a systems equivalent cost of \$33,125, and the average text editing equipment installed sells for \$15,000. Using the price/performance ratios of 2.0 and 1.6, by 1983 these equivalent prices will be \$16,500 and \$9,500. Note that this is an equivalent price/performance change, since the actual prices will not drop as much as the equipment functions will improve.

- Using these figures and the maximum theoretical market penetration charts, Exhibits VI-4 and VI-6, it can be seen that the growth in the maximum theoretical penetration over five years is 26% per year for EDP equipment and is 20% per year for office automation equipment. Assuming that the same ratio of actual versus possible penetration holds true in 1983, these percentages become the market growth figures.
- The potential for growth in the sale of computer services to small establishments in the accounting sector is the same as the potential for growth in the sale of small business computers to these firms. The growth rate of computer services to small establishments in the accounting sector forecast by processing services firms of under \$2 million in revenues is 18% for general business services, 30% for industry specialty services including tax return preparation.
- Communications services will grow in branches of national accounting firms at the same rate as the overall corporate use of communications will. This is 7% per year for voice, 20% per year for data communications and 9% overall. Independents will grow more slowly because they tend to be local rather than regional in nature, and therefore use fewer communications services.
- Communications equipment such as PABX and facsimile is expected to grow by the same percentage per year as the office automation equipment to which it is similar.
- The growth in use of supplies will follow that of the equipment which uses the supplies.

VII PURCHASE POINTS AND DECISION PROCESS

VII PURCHASE POINTS AND DECISION PROCESSES

A. PREFERRED INFORMATION SOURCES

- Branches preferred to get information about available equipment from salesmen or from other offices (see Exhibit VII-1).
- However, the purchase of equipment for branches is handled centrally, according to half of the respondents. In these cases, branches do not research equipment at all.
- Respondents from independent establishments also cited salesmen as the preferred information source. Other sources of information are used, but not relied upon (see Exhibit VII-2).

B. WHERE PURCHASE DECISIONS ARE MADE

- Computer equipment is normally purchased centrally at branch locations and on-site at independent establishments. The most centralized control of expenditures is imposed for the purchase of computer equipment and services.

EXHIBIT VII-1

PREFERRED INFORMATION SOURCES AS REPORTED
BY RESPONDENTS - BRANCHES

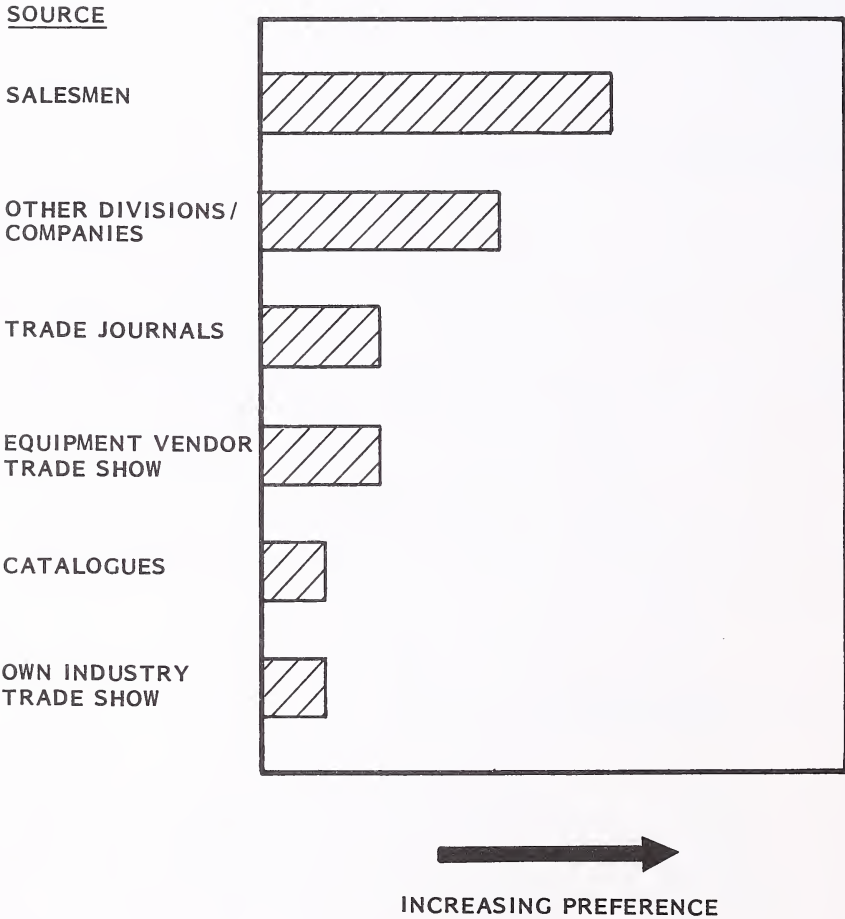
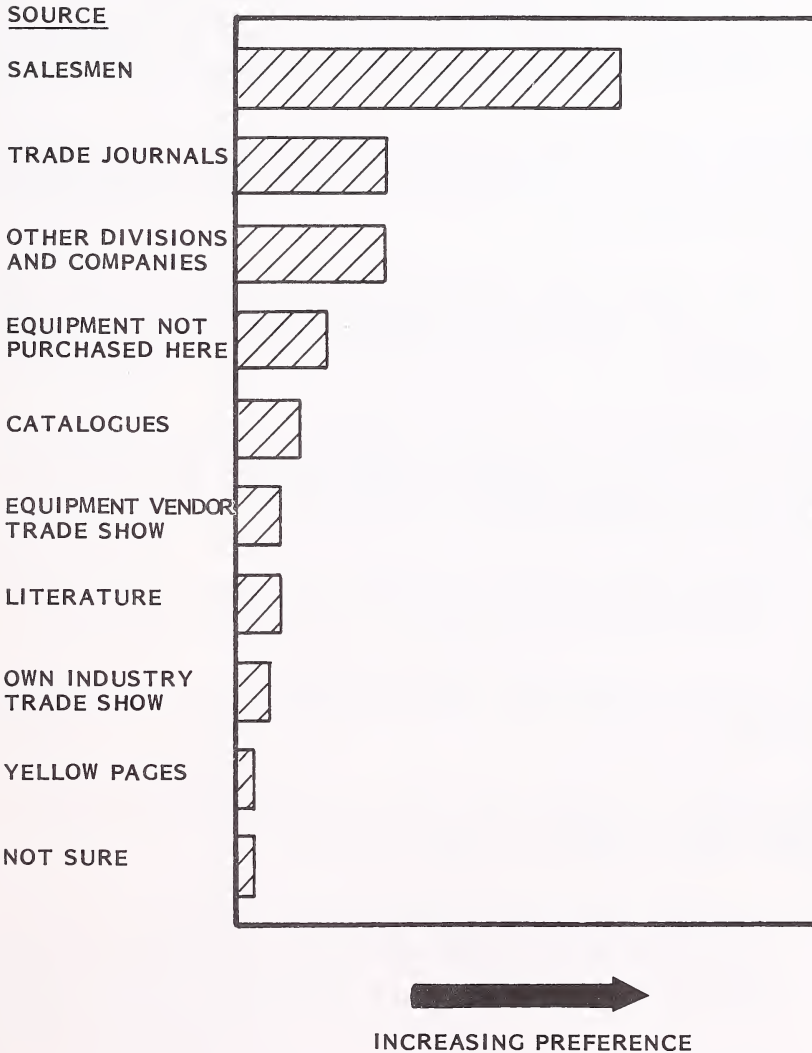


EXHIBIT VII-2

PREFERRED INFORMATION SOURCES AS
REPORTED BY RESPONDENTS - INDEPENDENTS

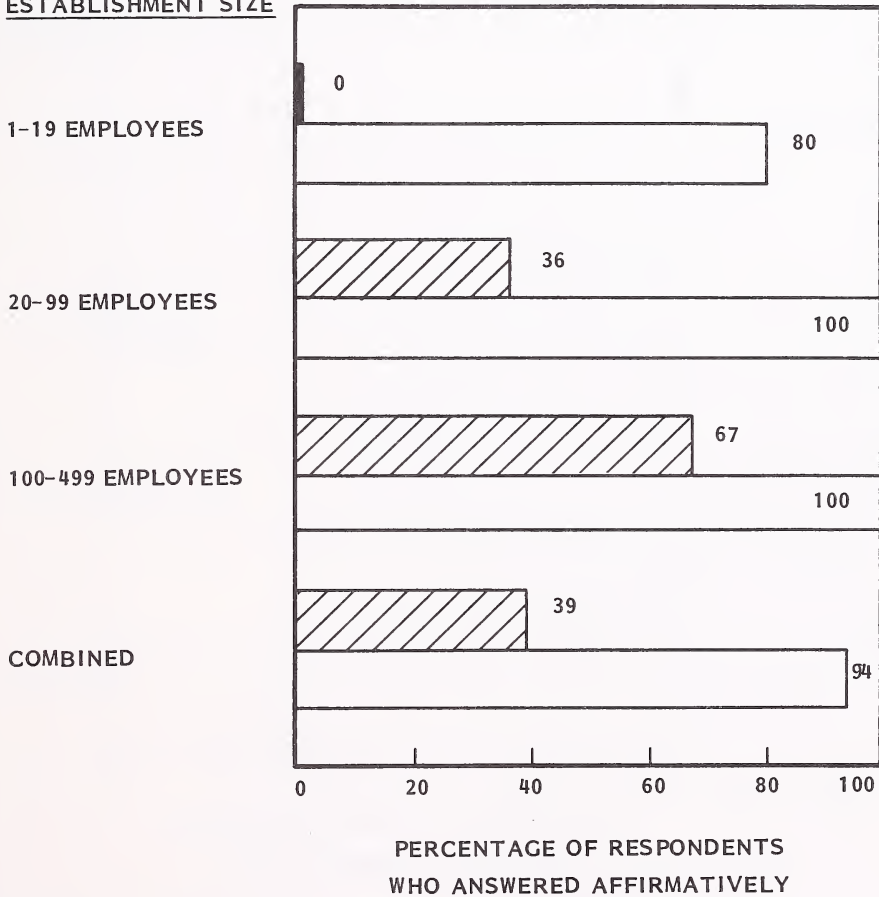


- However, up to 40% of branches of accounting firms are involved in expenditure decisions affecting their own locations, even though they may not have the final decision.
- Ninety-four percent of independent locations made purchase decisions for EDP equipment at their locations as shown in Exhibit VII-3. The exceptions are the very small locations (under 20 employees) of independent firms that have more than one location.
- Respondents cited no differences between computer equipment expenditures and computer services expenditures, as far as the type of approvals that are required (see Exhibit VII-4).
 - Many branches used a corporate computer and therefore had no need for any EDP equipment and services other than a corporate supplied terminal.
- Like all expenditures for equipment, services, and supplies, decisions for expenditures on office equipment in branch locations with less than 20 employees were not made locally.
 - However, 52% of branch respondents overall were involved in the decision to spend money for office equipment at their own locations.
 - Virtually all independents made this decision themselves (see Exhibit VII-5).
- The percentage of involvement for communications equipment and services is somewhat higher than for EDP or office equipment.
 - Fifty-seven percent of respondents from branches of national accounting firms state that they are involved in the decisions to obtain communications equipment for their own locations.

EXHIBIT VII-3

IS THIS LOCATION INVOLVED IN THE DECISION TO OBTAIN COMPUTER EQUIPMENT ?

ESTABLISHMENT SIZE

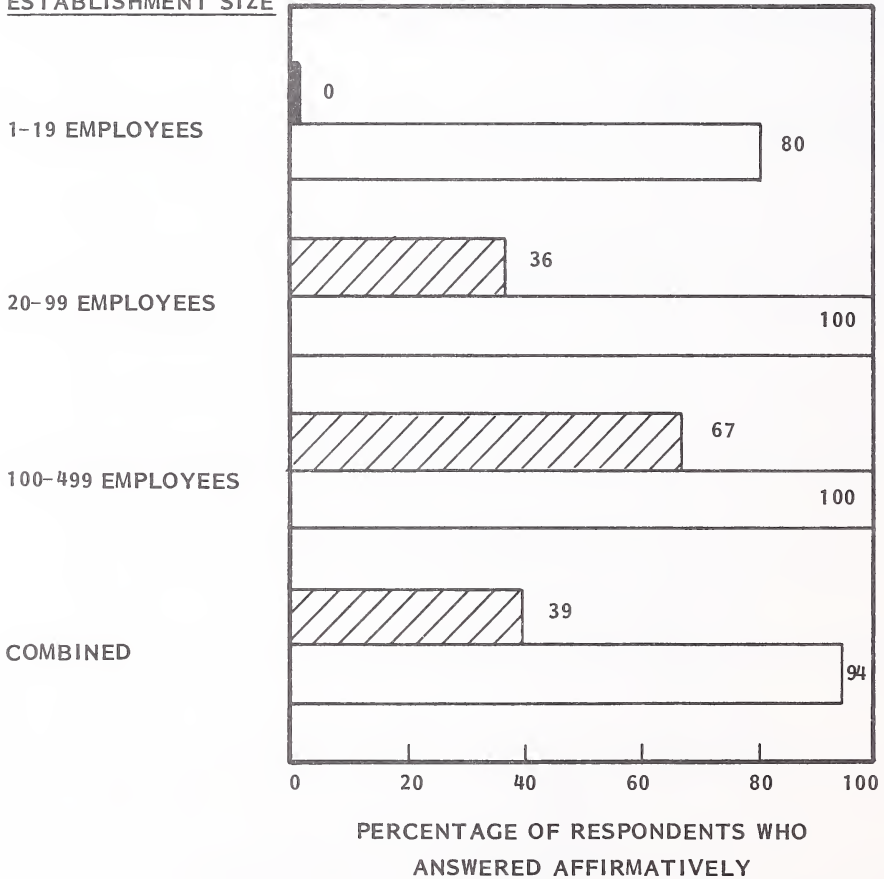


 BRANCHES (N = 23)
 INDEPENDENTS (N = 31)

EXHIBIT VII-4

IS THIS LOCATION INVOLVED IN THE DECISION TO OBTAIN COMPUTER SERVICES?

ESTABLISHMENT SIZE



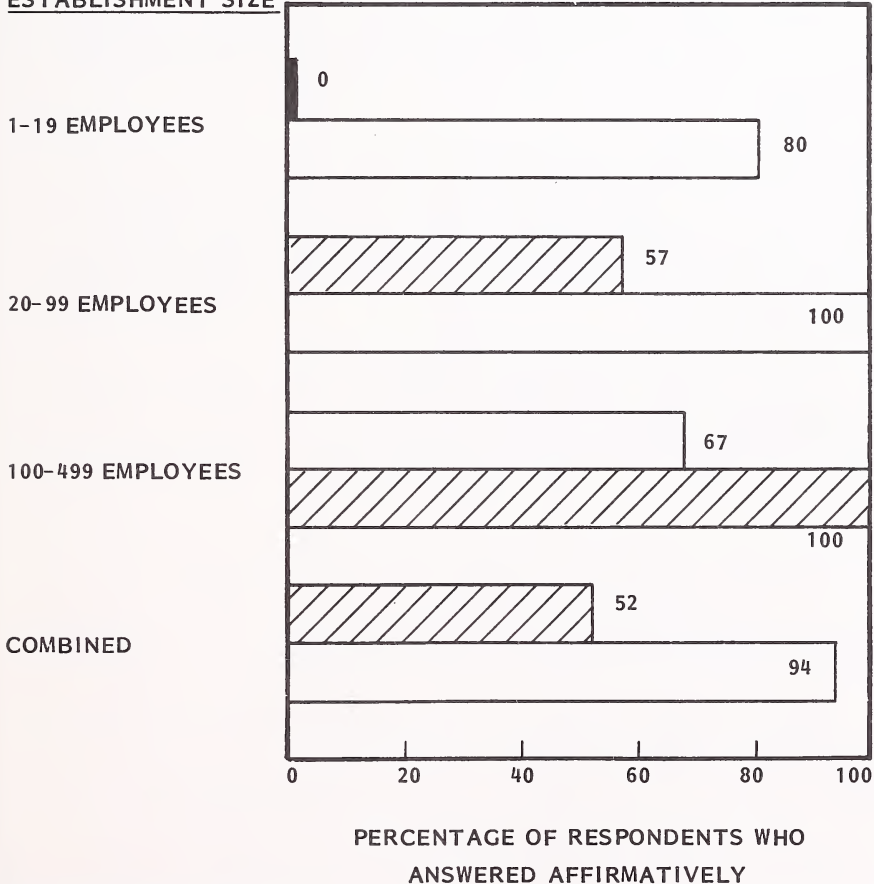
 BRANCHES (N = 23)

 INDEPENDENTS (N = 31)

EXHIBIT VII-5

IS THIS LOCATION INVOLVED IN THE DECISION TO OBTAIN OFFICE EQUIPMENT ?

ESTABLISHMENT SIZE



BRANCHES (N = 23)



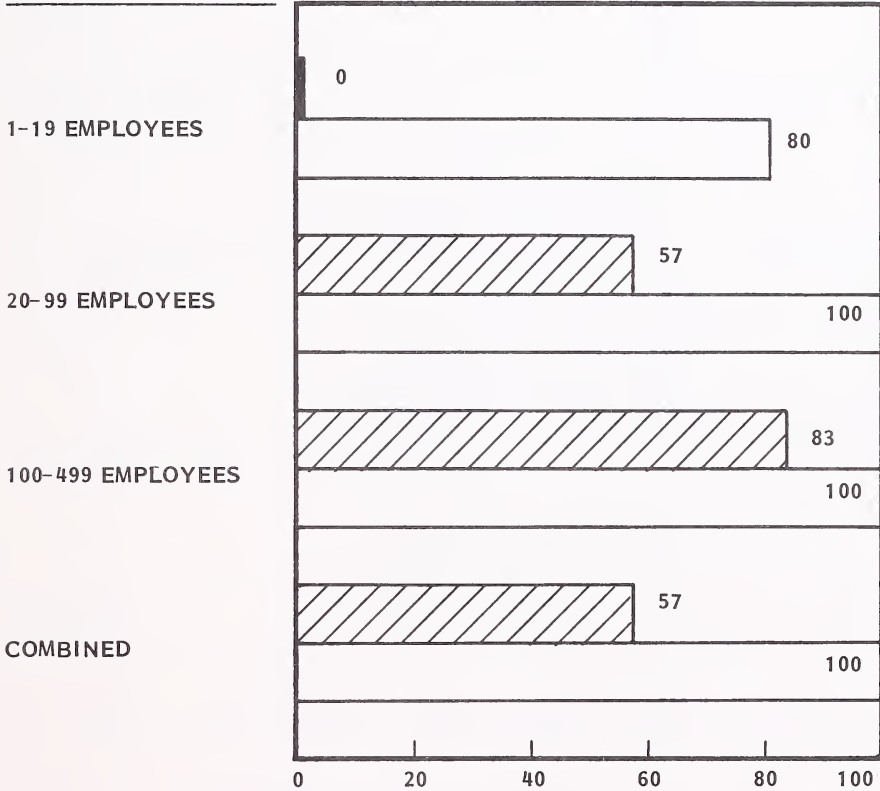
INDEPENDENTS (N = 31)

- As high as 83% of respondents from the largest branch locations (with more than 100 employees) have some say in communications equipment decisions (see Exhibit VII-6).
- Surprisingly, more branches in the 20-99 employee size group were involved in the decision to obtain communications services than were branches with more than 100 employees.
 - Overall, 48% of branch locations and 94% of independent establishments were involved in communications services decisions (see Exhibit VII-7).
- Following the same pattern as for equipment and services, small branches did not even purchase supplies locally. Supplies were usually purchased on national accounts or through another office. But overall, about one-half of branch locations were involved in purchase decisions for supplies that they used (see Exhibit VII-8).
- Comments from the few independent establishments who did not purchase from their locations were:
 - "Management advisory services does all purchasing."
 - "Purchasing is done by a senior partner at our other location."
 - "Don't make purchase decisions at all at this location."
 - "We buy as needed; handled through a central location."
- Comments from branches who didn't purchase from their locations were:
 - "Corporate handles all equipment purchases through national accounts."
 - "Not allowed to purchase."

EXHIBIT VII-6

IS THIS LOCATION INVOLVED IN THE DECISION TO OBTAIN COMMUNICATIONS EQUIPMENT?

ESTABLISHMENT SIZE



PERCENTAGE OF RESPONDENTS
WHO ANSWERED AFFIRMATIVELY



BRANCHES (N = 23)

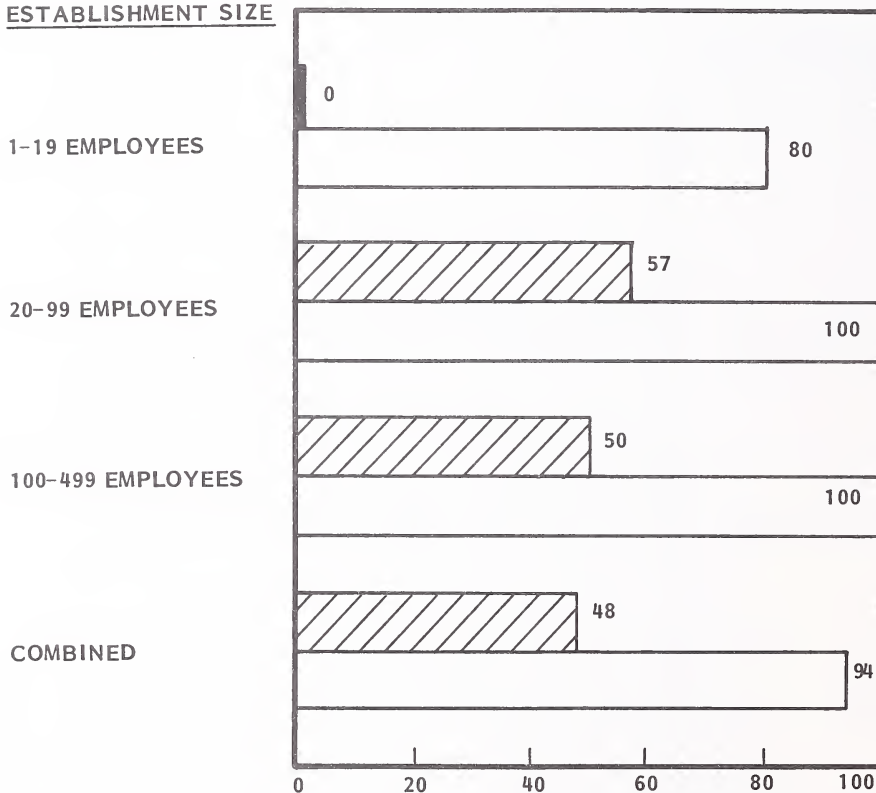


INDEPENDENTS (N = 31)

EXHIBIT VII-7

IS THIS LOCATION INVOLVED IN THE DECISION TO OBTAIN COMMUNICATIONS SERVICES?

ESTABLISHMENT SIZE



PERCENTAGE OF RESPONDENTS
WHO ANSWERED AFFIRMATIVELY



BRANCHES (N = 23)

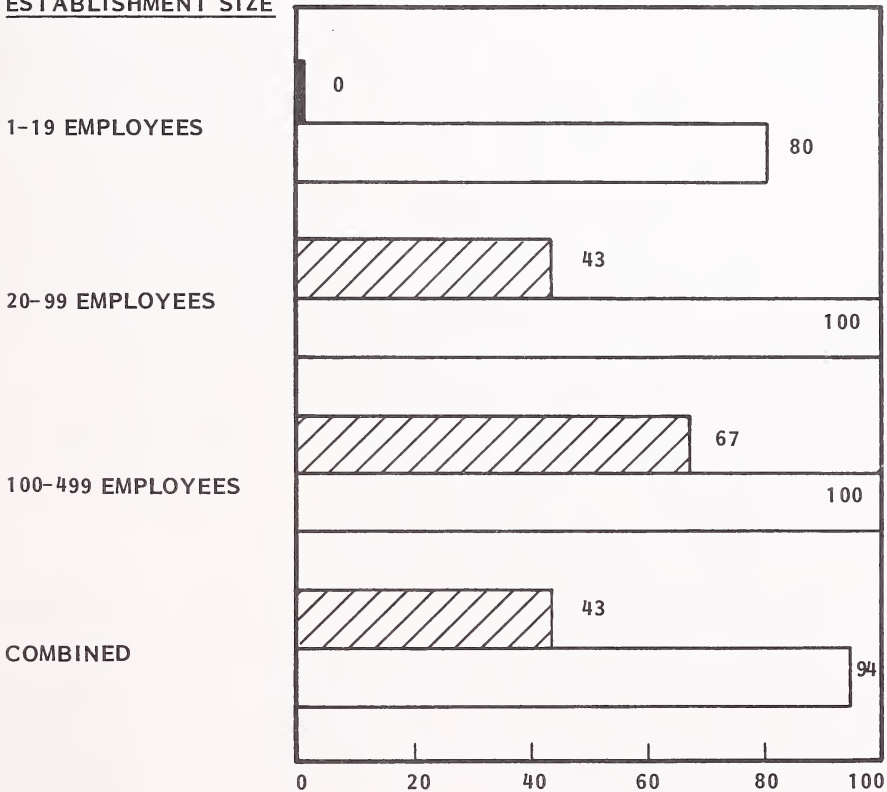


INDEPENDENTS (N = 31)

EXHIBIT VII-8

IS THIS LOCATION INVOLVED IN THE DECISION TO OBTAIN SUPPLIES?

ESTABLISHMENT SIZE



PERCENTAGE OF RESPONDENTS
WHO ANSWERED AFFIRMATIVELY

 BRANCHES (N = 23)
 INDEPENDENTS (N = 31)

- As high as 83% of respondents from the largest branch locations (with more than 100 employees) have some say in communications equipment decisions (see Exhibit VII-6).
- Surprisingly, more branches in the 20-99 employee size group were involved in the decision to obtain communications services than were branches with more than 100 employees.
 - Overall, 48% of branch locations and 94% of independent establishments were involved in communications services decisions (see Exhibit VII-7).
- Following the same pattern as for equipment and services, small branches did not even purchase supplies locally. Supplies were usually purchased on national accounts or through another office. But overall, about one-half of branch locations were involved in purchase decisions for supplies that they used (see Exhibit VII-8).
- Comments from the few independent establishments who did not purchase from their locations were:
 - "Management advisory services does all purchasing."
 - "Purchasing is done by a senior partner at our other location."
 - "Don't make purchase decisions at all at this location."
 - "We buy as needed; handled through a central location."
- Comments from branches who didn't purchase from their locations were:
 - "Corporate handles all equipment purchases through national accounts."
 - "Not allowed to purchase."
 - "Corporate has rigorous standards and does all purchasing."

APPENDIX A: SOURCES USED

APPENDIX A: SOURCES USED

The Accounting Establishment - A Staff Study by the Sub-Committee on Reports, Accounting, and Management, U. S. Senate Government Operations Committee -- 1976

1977 Committee Handbook - American Institute of Certified Public Accountants

Fortune Magazine - July 17, 1978

County Business Patterns - U. S. Summary - U. S. Department of the Census - 1975, Exhibits 1B, 2B

1976 Statistics of Common Carriers - Federal Communications Commission

1972 Standard Industrial Code Manual

Datapro 70 - Datapro Research Corporation - 1978

Office Products News - June, 1978

Office Products News - August, 1978

Office Products News - September, 1978

The Office - May, 1978

APPENDIX B: INTERVIEW PROGRAM FOR ACCOUNTING

APPENDIX B: INTERVIEW PROGRAM FOR THE ACCOUNTING INDUSTRY

ESTABLISHMENT SIZE	INDEPENDENT FIRMS	BRANCHES OF NATIONAL FIRMS	TOTAL
	PHONE	PHONE	
1-19 EMPLOYEES	10	3	13
20-99 EMPLOYEES	18	14	32
100+ EMPLOYEES	3	6	9
TOTAL	31	23	54

APPENDIX C: DEFINITIONS

APPENDIX C: DEFINITIONS

- An enterprise is a business organization.
- An establishment is a physical location, or a street address and can be:
 - An independent enterprise.
 - A branch of a major enterprise.
- An establishment can be a single-unit enterprise (SUE) or part of a multi-unit enterprise (MUE).
 - A single unit enterprise is an establishment having all operations consisting of activities not distinctly separable.
 - A multi-unit enterprise is a business organization consisting of more than one establishment or an establishment having distinctly separable activities.
- A branch is a physical location or street address and part of a "Big Eight" accounting firm or other national accounting firm.
- An independent establishment is a SUE or MUE whose employment is 500 employees or less, and which is not a branch as defined above.

- Computer services are provided by vendors which perform data processing functions using vendor computers, or who assist users to perform such functions on their own computers; included are remote computing services (RCS), batch services, facilities management, professional services, and software products.
- Computer equipment includes any locally installed terminal, minicomputer, or mainframe. For the purpose of forecasting only, the term is defined as locally installed general purpose minicomputer or mainframe; i.e., local processing intelligence -- not including desk top calculators or accounting machines.
- Communications equipment includes keyset or PABX. Communications automation is defined as interconnect, which is the attachment and use of non-telephone company equipment together with telephone company equipment or services.
- Communications services includes direct dial long distance (DDD), WATS, leased lines, tie lines, Telex/TWX, or other regulated transmission of voice or data.
- Office automation is defined as the use of word processing/text editing equipment, either single station or multi-station.
- Office equipment includes word processing, photocopiers, duplication machines and facsimile equipment.
- Industry specific EDP applications are defined as EDP applications which are important automatable functions of an industry or group of industries; e.g, interline payables (transportation) and bill of materials (discrete manufacturing).

APPENDIX D: QUESTIONNAIRE

CONFIDENTIAL SMALL ESTABLISHMENT SURVEY

We have been retained by a group of clients in the office products, computer, and communications industries to determine how they can better serve the needs of small and medium sized locations in your line of business. We are especially interested in the factors that influence how you obtain goods and services. All information will be kept strictly confidential and used for statistical purposes only.

SECTION I - GENERAL INFORMATION ABOUT YOUR COMPANY

- 1a. Is this location: headquarters of an independent enterprise ()
part of a larger company ()

1b. How many other locations are there? _____

2. What is the PRIMARY line of business at this location?

Description of Product or Service Regional or National

3. What is the SECONDARY line of business at this location (if any)?

Description of Product or Service Regional or National

4. What functions are performed here? () Sales () Accounting () R & D
() Warehousing () Manufacturing () Other _____

5. What are the annual gross sales at this location (if applicable) \$ _____
per yr.

6. How many employees at this location?

_____ production _____ office _____ management

SECTION II - IMPROVEMENT PLANS

1. What are the most significant administrative or information-related problems in your organization that you would like to see resolved?

2. Would a piece of office equipment that can accommodate several administrative functions be more attractive to you than single-function equipment? () Yes () No () Depends on application. Which administrative functions would it have to handle? _____

3. What do you consider your primary data processing needs? _____

4. What are the most important improvements that are needed in the telephone/communications area? _____

5. What is currently preventing you from automating more of your office operations? _____

6. In order of priority, what improvements do you expect to make in any of these areas in the next two years? _____

In the next 3-5 years? _____
7. Would you consider (or have you considered) using an outside service for any of these improvements?
() Yes. Which functions? _____
() No. Why? _____
8. How can office, communications, data processing equipment manufacturers better meet your needs? _____

SECTION III - OFFICE AND COMMUNICATION REQUIREMENTS

1. Please check all of the following that apply to your location.

<u>Office Function</u>	<u>Doing Now</u>	<u>Will Do Within 5 Yrs.</u>
Copying	()	()
Duplication/Printing (using ink)	()	()
Text/Word Processing (automatic equipment)	()	()
Photocomposition	()	()
Other _____	()	()

2. If you are doing or planning to do any of the following over phone lines, please check all that apply.

<u>Communication Function</u>	<u>Using Now</u>		<u>Will Be Using In 5 Yrs.</u>	
	<u>Inside Parent Organization</u>	<u>To Other Companies</u>	<u>Inside Parent Organization</u>	<u>To Other Companies</u>
WATS or private lines	()	()	()	()
Telex/TWX	()	()	()	()
Sending data by phone to or from computers	()	()	()	()
Text editing by phone to or from another location	()	()	()	()
Facsimile transmission	()	()	()	()
Other _____	()	()	()	()

3. What major changes do you foresee for your company in either of these areas? _____

4. What other problems do you have in these areas that you would like to see resolved? _____

SECTION IV - EDP FUNCTIONAL REQUIREMENTS

1. If you are presently performing the following functions by hand at your location, or if you are using a computer, terminal, or outside computer services firm, or if you expect to automate any of these functions within 5 years, please check all that apply. Otherwise, check this box () and skip to the next section.

	DONE BY HAND NOW	AUTOMATED WITHIN			DONE BY HAND NOW	AUTOMATED WITHIN	
		NOW	5 YEARS			NOW	5 YEARS
<u>Marketing & Sales</u>				<u>Purchasing</u>			
Order Entry ()	()	()		Inventory Control ()	()	()	()
Sales Analysis ()	()	()	()	Receiving ()	()	()	()
Credit Authorization ()	()	()	()	Other _____ ()	()	()	()
Other _____ ()	()	()	()	<u>Manufacturing</u>			
<u>Finance-Accounting</u>				Bill of Materials ()	()	()	()
Payroll ()	()	()	()	Shop Floor Control ()	()	()	()
Billing ()	()	()	()	Order Tracking ()	()	()	()
Accts. Receivable ()	()	()	()	Material Require- ments Planning ()	()	()	()
Accts. Payable ()	()	()	()	Scheduling ()	()	()	()
General Ledger ()	()	()	()	Job Costing ()	()	()	()
Other _____ ()	()	()	()	Estimating ()	()	()	()
<u>Warehousing-Distribution</u>				Numerical Control ()	()	()	()
Order Allocation ()	()	()	()	Other _____ ()	()	()	()
Shipping ()	()	()	()	<u>R & D</u>			
Stock Replenishment ()	()	()	()	Analysis/Design ()	()	()	()
Other _____ ()	()	()	()	Other _____ ()	()	()	()

2. What major changes in EDP do you foresee for your company in the next 5 years? _____
3. What other EDP problems do you have that you would like to see resolved? _____

SECTION V - DECISION PROCESS

1. How do you usually go about finding a solution to any of these problems? Please mark 1st, 2nd, and 3rd choice.

	1st ()	2nd ()	3rd ()
Look at trade journals	()	()	()
Look at catalogues	()	()	()
Look in the Yellow Pages	()	()	()
Talk to other companies/divisions	()	()	()
Salesmen call on you	()	()	()
Send for literature	()	()	()
Attend a trade show by your industry	()	()	()
Demonstration or show by their company	()	()	()
Other _____	()	()	()

SECTION VI - WHAT IS PRESENTLY IN USE AT YOUR LOCATION?

A - Equipment

	Company Make/Model	Number In Use	Approx. Cost
1. Computer Related			
a. Accounting Machine	_____	_____	_____
b. Desk Top Calculator	_____	_____	_____
c. Terminal	_____	_____	_____
d. Small business Computer	_____	_____	_____
If d, is it connected to headquarters? () Yes () No			
2. Copiers			
	Company Make/Model	Number In Use	No. Copies/Month
a. Coated Paper Copier	_____	_____	_____
b. Plain Paper Copier	_____	_____	_____
c. Duplicator (ink process, uses a master)	_____	_____	_____
3. Text Editing/Word Processing			
	Company Make/Model	Number In Use	No. Pages/Month
a. Single station	_____	_____	_____
b. Multi-station	_____	_____	_____
c. Other _____	_____	_____	_____
4. Communications Related			
	Company Make/Model	Number In Use	No. Trunks
a. Keyset	_____	_____	_____
b. PABX	_____	_____	_____
c. Facsimile	_____	_____	_____
d. Other _____	_____	_____	_____

B - Outside Services

5. EDP Services	Service Type	% Of Total EDP Function Performed By Services	
	_____	_____	
	_____	_____	
6. Office Services	Service Type	% Of Total Office Function Performed By Services	
a. Text Processing	_____	_____	
b. Composition	_____	_____	
7. Communications Services	Service Type	% To Your Co.	% To Other Companies
a. From phone company	_____	_____ %	_____ %
b. From independent supplier of services not equipment mfg. (ie. Western Union, MCI)	_____	_____ %	_____ %

SECTION VII - SIZE OF STAFF

1. How many full-time equivalent employees do you have at your location in these classifications?
- | | Now | Changes expected in next 5 years |
|-------------------------------|-------|----------------------------------|
| <u>EDP RELATED</u> | | |
| a. Data Entry (only) | _____ | _____ |
| b. Operators (only) | _____ | _____ |
| c. Programmers | _____ | _____ |
| d. Analysts | _____ | _____ |
| <u>OFFICE RELATED</u> | | |
| e. Secretaries/Typists | _____ | _____ |
| f. Clerks | _____ | _____ |
| g. Other _____ | _____ | _____ |
| <u>COMMUNICATIONS RELATED</u> | | |
| h. Switchboard Operators | _____ | _____ |
| i. Technicians/Professionals | _____ | _____ |
2. Total Employees this location _____

SECTION VIII - EXPENDITURES

1. How do you normally budget for administrative expenses?
- _____ percentage of gross sales ()
- last year's personnel and consumable costs plus allowance for inflation ()
- treat new office equipment as capital investment and handle on individual basis ()
- no separate location budget; included in corporate budget ()
- other (describe) _____ ()
2. How large an expense could you consider for improvements in any one year, assuming benefits justify the expenditure?
- Less than \$100/monthly () \$1001 - \$2000/monthly ()
- \$100 - \$250/monthly () \$2001 - \$3500/monthly ()
- \$251 - \$500/monthly () \$3500 - \$5000/monthly ()
- \$501 - \$1000/monthly () More than \$5000/monthly ()
3. Do you have a separate budget for communications? ____ If so, how much is it? \$ _____/year. How is it determined?
- _____
4. Do you have a separate budget for data processing? ____ If so, how much is it? \$ _____/year. How is it determined?

5. Do you have a separate budget for office equipment? ____ If so,
how much is it? \$_____/year. How is it determined?

6. Do you have a separate budget for office supplies? ____ if so,
how much is it? \$_____/year. How is it determined?

ALL INFORMATION IN THIS QUESTIONNAIRE WILL BE KEPT STRICTLY CONFIDENTIAL AND USED FOR
STATISTICAL PURPOSES ONLY.

